DOMESTIC ENGINEERING
The Plumbing and Heating Weekly

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Is It to Laugh or Cry?

WITHIN the past prosperous year—so the tale is told—a plumber went a hunting. A storm came up. He looked about for shelter, but there was none. The rain came down like a cloudburst. So the plumber crawled into a hollow log that fitted him snugly.

The rain lasted for hours. The water soaked through the wood, and the log began to contract. When the storm was over the plumber found that he couldn't get out of the log.

He tugged and strained with all his might, but it was no use. The log held tight. At last he gave up. He believed that he would have to stay there until he starved to death.

Like a drowning man, his whole life flashed before him—especially his mistakes. He thought of the many contracts he had had, of the low estimates he had made, of the hard work he had done, and last but most important of all, of the little profit he had been making because of his foolish desire to get jobs regardless of price.

And what do you think happened? The low price and little profit thoughts made him feel so small that he was able to crawl out of the log, go home, and start business on a live-and-let-live basis.

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Robert Owen, the world's first great business man, said: "Anybody can cut prices, but it takes brains to do better work."

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Selling Apprentices

EVERYTHING has to be sold. That is a fact that is sometimes overlooked. It is one thing to want apprentices. It is quite another thing to sell boys the idea of becoming apprentices. To sell a boy the apprenticeship idea he must be sold plumbing or heating—the bigness of these industries, their worth to the world, the money that can be made in them.

Much good selling is being done. But why not do more? If every master will make it a point to talk the advantages to be found in the plumbing and heating business, soon there will be apprentices aplenty.

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Before others will believe in you and your work you must believe in yourself and what you are doing.

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"Day by Day," as They Say

A LITTLE Frenchman by the name of Emile Coué—pronounced Coo-a, with the accent on the "a"—is now in the United States. People everywhere are talking about this little man. And why? What has he done to cause so much interest? Only this. He has put over an auto-suggestive idea that is as old as the hills. The idea is that if you say a thing often enough—keep repeating it over and over—after a while you will believe it. And others will believe it, too.

What we believe is what makes us do the things we do.

Keeping an idea before the public is what builds business. This is the foundation of the Bath a Day movement, of advertising, of good window displays, of everything that makes us a prosperous people.

Say, "Day by day, in every way, I'm building better and better." Say it, think it, practice it, and by and by it will come true.

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Friendship is a matter of getting acquainted, and friendship plays a big part in business.

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The Worth of a Paid Secretary

THERE is an old saying that what is everybody's work is nobody's work. And this being true, and the time being the beginning of convention time, it may not be out of place to say a word for the paid secretary.

You may have noticed that locals that have paid secretaries get more work done. They have a man who is on the job—who does everybody's work, including his own. A paid secretary keeps alive the interests of plumbing and heating interests. Having nothing else to do, he works for the good of all.

True, a paid secretary has to be paid. But what of that? He can earn his pay, and more, by creating a larger and a better public interest. And his pay will return to the members through increased sales.

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A man who feels that he is too poor to ride, will never feel rich enough to ride.

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Saying It with Pictures

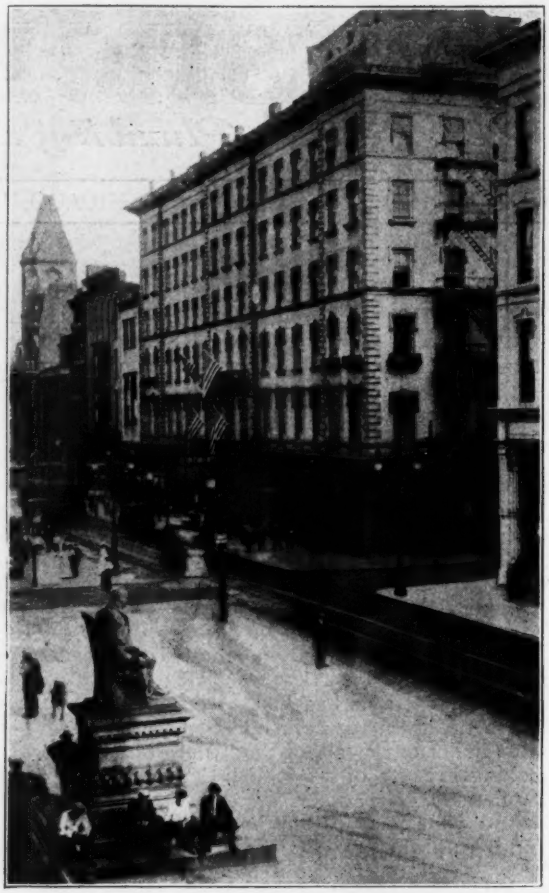
TURN to the next page after this and you will see a group of pictures. That page will hold a group of pictures each week. This, then, is an invitation to everybody in the plumbing, heating and ventilating fields to send in pictures for the picture page. The picture may be of a person, or display, or picnic, or of anything odd or interesting.

The other day a man went into an office, walked straight up to another, held out his hand and said, "How are you, Mr. Wilson." Now the two men had never met before. But the man who held out his hand had seen the other man's picture. That was enough. He knew him.

Send pictures of any kind and every kind. And don't forget to tell who or what the pictures represent.

J. C. Brattain, plumber of Alexandria, Ind., has been in business 30 years and has earned the right to wear a white shirt. Left, Chas. Griffin who has worked for Brattain 23 years. Right, H. N. Brattain, who recently became a partner.

A veteran of a Wisconsin stock farm. It is 24 years old and has pumped many million gallons they say.



The historic Continental Hotel, Philadelphia, which is to be replaced soon by the new seven million dollar Ben Franklin hotel. A statue of Franklin is seen in the foreground. There will be 1221 guest rooms. The W. G. Cornell Company will do the plumbing. Heating installations were awarded to the Baker-Smith Co. Both of these companies are New York concerns.

W. R. Carter, of Jacksonville, and foreman, E. A. Eathcote.

Wm. E. Stewart, plumber, Ventnor City, N. J., has something to be proud of besides a thriving business. This is the daughter, Miss Amy.

H. E. Hertner, plumber, Amarillo, Tex., and W. J. Hebenstreet, of Blake Specialty Co., Rock Island, Ill., went 700 feet down into the Palo Duro Canyon last fall, and here they are. The plumber is posing modestly in the background.

Any kind of a bath was welcome during the war. But suppose you had to call out the fire department every time you wanted to take one.

The Urias Hub Window Display As It Appeared in 1902.

An Unfinished Tale

From the Old Reporter's Notebook

THE veteran trade journal reporter mused over his typewriter. Inspirations were few and far between that day. He had tried several times to have an Idea paged. But there had been no answer to the summons. He had even tried to write without the help of an Idea, but it was no use.

It may, perhaps, have been too near New Year's day. It may have been too far from next New Year's day. He did not know. "Perhaps it is the cold," he reflected, although he knew that in times past his brain and his fingers had been stimulated by a little chill in the air. And he searched his memory in vain for a story.

He had journeyed far, he reflected, in the many years that now seemed as days, since he first took up the notebook and pencil. And in his journeys he had called on many master plumbers. Attired in Panama hat and palm beach suit he had visited New Orleans. He had talked to the untiring Leander Marx, and caught some of his vision of the future of the science of plumbing and heating. He had found inspiration in the business building ideas of Samuel B. Stewart. And, as he left that busy city of the South, he had reflected: "Here in the Southland we have master plumbers that are worthy of the title Master. Here we have men after whom the North and the East and the West can well pattern their activities."

A CHANGE FROM SOUTH TO NORTH

THEN, one day in January, with coat collar turned high, with heavy rubbers supplementing the work of shoes designed for Chicago's snowless streets, he had stamped into the shop of Eddy Brothers Engineering Co., at Alpena, which is in the ten below zero zone of Northern Michigan. Here the open fire was as welcome as the open window had been in New Orleans, and he thawed himself gratefully as he took note of the place into which he had drifted.

And, as he talked to a man who, altho in a small city, had turned himself and his business to big city methods, the old reporter had been heard to remark, "The North, too, has men who deserve to be classed as leaders in the trade. The North and South set the pace. East and West can surely do no better than to observe and imitate."

But it had been decreed that he should not tarry long in any place, and before many months had passed he was in Boston. He had visited for a pleasant hour with J. Preston Perham, who, without attempting to do so, had pointed out many of the important milestones along the road to success.

"The North, the South and the East," he had written, "all have caught the spirit that is making a science of the old trades of plumbing and steam fitting."

And he continued on his journey. Straight across the continent his wandering carried him, and, on the far Pacific slope, the Native Sons of the Golden West claimed his interest. He had become enthusiastic over the manner in which J. Hokom, of Los Angeles, specializes in bungalows, and how Thomas Haverty, of the same city, has grown to be one of the largest individual plumbers in the country. Further up the coast, at San Francisco, John L. E. Firmin, telling of things past and present in the trade of his choosing and in the life of his Association, proved a genuine inspiration.

"North, South, East and West," he had concluded, "all have contributed equally to the progress and upbuilding of this great industry."

And then in many other states, in scores of cities, and in hundreds of shops he had called. He had visited big shops in small cities. He had seen small shops in big cities. He had talked to men who attributed their success to conservatism. And he had listened to men preach the gospel of progressiveness. He had made friends of many who were actively engaged in association work. He had made other friends of those who regarded associations with complete indifference. But every place had supplied something to his notebook. Every place boasted something new or something interesting. In every life he had found a story, or a part of a story, and all these had been carefully jotted down.

And eventually the tales had been told with the confidence that someone, somewhere, would read and profit by every good idea written; and with the hope that the light of one man's success might serve as a beacon to others.

"Tales that are told," said the old reporter, as he turned the pages of his notebook. "Only one story left, and that is one I never can use. That one didn't end right." And he threw the book on the table. And there lay the unfinished, never to be finished, story. It was like this:

THE PLUMBING CAREER OF URIAS HUB

THIRTY years ago Urias Hub was an active element in the early history of plumbing and heating in Bankstown. He had learned his trade well, and, as a mender of pipes, and a worker in lead, it was acknowledged that he had no superior. Indeed, it is often said that Urias himself was always among the first to acknowledge the fact. Others fell in line, for the force of his arguments were often backed by the force of fists, and Urias was a

strong lad. "Nobody can tell me anything," was one of his most frequent statements.

As a plumber's helper he had always been very much in demand. For no other boy around the shop could carry a heavier kit of tools. Sometimes when Urias left the shop loaded for a trip he closely resembled a pack mule about to start on a journey across the desert. It had been remarked that the resemblance was striking in more ways than one, but Urias was never apprised of that fact.

Urias didn't read much. He sometimes admitted that trade papers were all right, but when the evening came he was too tired for anything except bed. A few hours with the sporting pages, however, always preceded his retiring. In this way he relieved his mind of all the troublesome problems of plumbing and heating, and, at the same time, kept himself well informed on the progress and daily doings of the various flyweight to heavyweight fighters.

FROM HELPER TO JOURNEYMAN TO MASTER

THAT was the part that plumbing and heating played in the life of young Urias Hub. Eventually he found himself rated as a journeyman, and the duties of the tool kit were passed on to an ambitious youth who was selected to follow in his footsteps. As a journeyman he was, perhaps, not quite as much in demand as he had been in his helper days, but he was generally considered pretty good on roughing in, and he was almost indispensable when a heavy coil of lead or a bathtub was to be moved from one place to another.

His brusque manner of dealing with his fellow workers he carried into the homes of customers. But he found that the language and manners of a stevedore were not received in the same spirit in the home as they had been in the shop. On one occasion he picked himself up in the front yard and sent his helper back into the house for his tools just two minutes after he had told the householder "what he thought of him."

Time wore on, and eventually, almost in spite of himself, he became the owner of a shop. That was some twenty years ago, and the only change made was that of substituting "Urias Hub, Plumbing," on the sign that had once read, "J. C. Smith, Plumbing Service." The shop, as it can now be seen, is virtually the same as that in which he first hung his hat as a master plumber in 1902.

There is a display room, to be sure. And an inventory of the articles to be found there would be of unlimited interest to a collecter of antiques. Whether or not they would interest the modern home owner is another matter. Marble topped lavatories, with hand painted bowls; closets with intricate designs fashioned in the porcelain, high flush tanks were all on exhibition then, and are on exhibition now.

The business career of Urias Hub has not been without its high spots. One of his most brilliant strokes was on the occasion of the destruction by fire of a local supply house. Damaged fixtures, blackened and crazed enamel and porcelain, and other material, all marked by the fire and water and smoke, could be had almost for the hauling away. Here was a glorious opportunity. The junk was bought at a junk dealer's price, and Mr. Hub plunged into the biggest speculative deal of his career. He held a special sale. He promised plumbing at a ridiculously low figure, and the good folks who are always attracted by a ridiculously low figure hurried in answer to the call.

The Urias Hub Window Display As It Appeared in 1922.

Many sales were made. For where a patched and painted tub could not be sold for eight dollars, it was "sacrificed" at six, or "given away" at four. Some of the pieces, notwithstanding the prices, were unsalable, and these were stored in the shop, the yard, the basement and the alley. This scheme of decorating added materially to the individuality of the establishment.

A question that Mr. Hub has never been able to answer is whether the material sold or that which was retained constituted the worst investment. That which was sold proved to be a never-ending source of worriment for Mr. Hub. "Quality is remembered long after price is forgotten," reads an advertising slogan, and this he found to be true. The lower the prices paid, he found, the more quickly they were forgotten, and he was constantly making explanations and apologies for the "quality" that was so sadly lacking.

This problem was generally solved by the simple expedient of telling each customer who made a complaint that, "If the stuff's no good, that's your tough luck. You got it for almost nothing." Very few of them returned after having the matter explained to them in that light. Indeed, "Quality is remembered," and so is dissatisfaction.

NO TIME FOR FOOLING AROUND

ASIDE from his merchandising, Mr. Hub has also gone in for a little contracting. His system is to figure on the job, usually a very short process, and, if he lands it, to get the material from a more generous or less wary jobber, hire men from the floating element to help install it, and make what he can.

Occasionally builders are reluctant to accept his figures, even though they are always from 20 to 40 per cent lower. "Politics," says Mr. Hub, wisely, "they fall for these birds who are always pushing themselves into the spotlight. If a man wants to fool around with the Rotary Club or Kiwanis, or the Chamber of Commerce he can get all the jobs he wants. I got no time for that stuff."

For the same reason he is out of the local Association of Master Plumbers, although at one time he was one of its less active members. He also observed, during his brief time in the association, that there was a "bunch of hypocrites in there who talk nice on meeting nights and then try to rob you next day." He did not suggest any remedy for the reported state of affairs, other than a refusal to "associate with them any longer."

In the matter of trade knowledge and trade opinions, Mr. Hub retains his early preference for the sporting sheet rather than the trade publications. He is still "too busy to read." Although he admits that some trade papers aren't

so bad, he sees no reason for reading things that he already knows.

The problems of newspaper advertising schemes and publicity he has solved by the simple expedient of leaving them strictly alone. "I have been right in this spot for nearly twenty years. Everybody knows where I am, and if they want me they can hunt me up," is one of his favorite arguments.

Mr. Hub's Personal Pride Is Reflected in the Arrangement of His Stock.

The bookkeeping system employed is as simple as could be hoped for. Prices are quoted from memory, or from the original invoices, if they can be found. Bills are sent out at the convenience of Mrs. Hub, who lends a few hours a day, thus reducing the overhead to practically zero. This, incidentally, is what it is figured at when profits for the year are being estimated.

Speaking of the future of the business, Mr. Hub remarks: "What do I care about the shop after I am gone? It will last as long as I do, and after that it doesn't make any difference what happens to it. Every man for himself, is my motto. That's how I got mine, and I don't give nothin' to nobody that don't give nothin' to me."

A SAD END

AND now, the reader will ask, what results have been achieved? Simply this . . .

But here the old reporter's notes end. However, stuck in between the pages of the notebook was found a newspaper clipping, evidently of recent date, from the classified columns of some small town daily. It reads thus:

> Situation Wanted:—Man 55 years, strong, active, as janitor, watchman or handy man. Can do plumbing and steam fitting. Address U. Hub, 513 Spruce St. No phone.

Passin' Through

A Chatty Letter from One Friend to Another

DEAR GUS: Jackson, Mich. Ever hear of it? Yes, that's the place where Jas. J. Keeley comes from. Or, rather, I should say that is the place that James J. Keeley came to. But, at that, thirty-five years in one place almost gives a man the right to call it his home, doesn't it? I have seen salesmen make a home out of an office chair in thirty-five seconds.

And then, speaking of salesmen, one of them taught me a lesson the other day. He came into an office, started his talk—it was a good one, too—and just when it looked as if he had a sale he parked himself in a chair. From then on all bets were off. The sitting was easy, the buyer took the conversation out of the salesman's hands, and after he had talked to him for a while he was called out in a hurry. He excused himself with a hurried, "Well, stop in again," and was gone. From that it looks to me as if a man can best do business when he is in a perpendicular position. Maybe I'm wrong on that point, but it seems to me that the same thing would apply to a business man in a store. As long as he stands up, keeps on his feet and shows up above the crowd, he makes the sales. As soon as he slumps down into a position where he can easily doze, he becomes indifferent and loses out. What say?

But I was talking about Keeley. He is one of the kind that keeps above the crowd all the time, both in his own business and in his civic life. He has been an alderman in Jackson for ten years, and president of the city council. They even have a park out here named Keeley Park. That was a project that he backed when he was in the council.

There is a good bit of home building going on around these parts, and several new industries coming to town are swelling the contractors' receipts. The Barnwell Mfg. Co. is moving here from Ogdensburg, N. Y. The International Lamp Co., said to be one of the biggest manufacturers of art lamps in the country, is coming from Chicago. And the Universal Ice Machine Co. is moving here from Detroit. There must be something about Jackson that appeals to them. Naturally the plumbing and heating dealers are coming in for their share of the building that will be involved.

J. J. Dowsett & Co. is another enterprising outfit. I was especially pleased with the bookkeeping and accounting system, as it was explained to me by Mr. Reed. Everything that is to be charged to a job is entered on an autographic register. This includes all labor as well as materials. Then the slips are taken to the office, where they are made up on statements to be filed in a loose-leaf binder until the job is completed. Bills are then made out and the ledger pages or accounts are transferred to a bills payable binder. After they are settled they are once more transferred to a final bills paid binder. It must be a good system, for the bills payable binder is almost empty, while the bills paid is full to overflowing.

I expect you are commencing to look forward to your convention, aren't you? So am I. They will be coming thick and fast pretty soon now, and I suppose I will repeat last year's performance by trying to get to all of them. I managed to hold up pretty fine, except that my right hand was overdeveloped from handshaking and my left lapel was pulled clear out of shape from the assortment of badges it was called on to support. I think I will go especially prepared this year, with a reinforced coat front, and four extra vest pockets for souvenir notebooks. I have decided to give up the practice of carrying home samples of soil pipe. They very rarely "come in handy," and they add considerably to the weight of a suitcase.

I might drop you a line from somewhere in Iowa out where the corn flows, or rather grows, for they don't pronounce it "eye-opener-way" now like they used to.

Your friend, RUSS.

Where and How to Use Return Traps

The Various Types of Traps Required by Modern Vapor and Vacuum Heating Systems for Eliminating Air and Returning Condensation

By R. H. Anderegg

THE ever increasing popularity of return traps for vapor and vacuum heating systems as well as their particular adaptability for application to the return of condensation under various unusual conditions of service makes a thorough understanding of these specialties of great value to the contractor.

Vapor heating systems can be placed under two broad classifications, namely, the restricted fitting systems and the radiator trap systems. Analysis of the method of

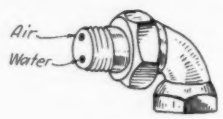


Fig. 1.

taking care of the return end of the radiator as well as the return of the condensation in both types will help fix the principles more firmly in mind and give the contractor a method of attack on new problems which are closely allied but are not commonly met.

Fig. 1 shows one type of restricted fitting which is a union elbow with one end solid; this having two holes drilled in it, the lower relieving the condensation; the upper the air. Size of holes will vary according to the amount of radiation which they are to drain and relieve.

Fig. 2 shows a sketch of one radiator as it may be connected on a two-pipe straight steam system. Notice that the steam, which is shown by the cross hatched area, fills the steam space of the boiler, the supply line, together with the return to a point slightly above the water line. This point is entirely dependent upon the loss in pressure in the supply and return. For the average medium-sized installations it will rarely exceed two ounces,

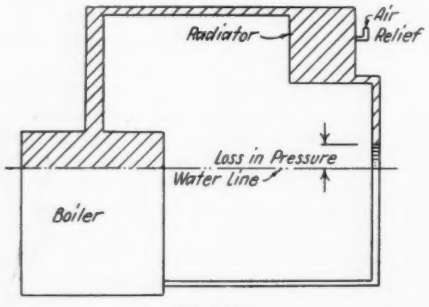


Fig. 2.

which means that the water would extend about 3½ inches above the normal water line. With check valves in the wet return line, this distance will be increased due to the friction or, in other words, it is necessary to provide a head of water on the inlet of the check valve in order to allow the flapper to open. See Fig. 3. This head will vary from 3 inches of water and higher, depending upon the construction of the valve, length of service, etc. Ordinarily, radiators are 30 inches and higher above the water line, so that there is no danger of water backing up into them with full steam pressure in the radiator. The cycle of operation is automatic. Steam is condensed, air relieved by the air valve and the water goes back to the boiler by gravity, since water will always seek its own level.

Eliminating Air in Basement

THE ordinary vapor system is designed in such a way as to permit the removal of all air in the basement. In this way the foul and stagnant odors so often prominent in straight steam jobs are avoided.

By referring to Fig. 4 we see the usual type of restricted fitting installation with the action of the steam and condensation illustrated. The inlet valve is generally of the graduated type. This restricted fitting is similar to that shown in Fig. 1.

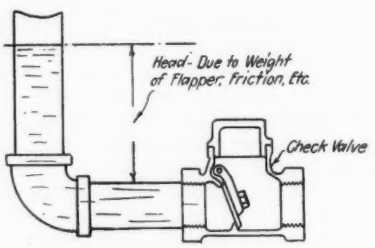


Fig. 3.

A return trap in miniature is the combination receiver or vent trap with the thermostatic vent. By referring to Fig. 5 we see that the thermostatic vent consists of a body with openings to allow the escape of air but to prevent the escape of steam due to the expansion of the thermostatic element which will close the port open to atmosphere. The aluminum disc or ball will prevent air from coming in. Fig. 6 shows one form of vent trap. This consists of a float connected to the valve by means of a lever arrangement. As water enters the trap the float rises, closing off the outlet port and in this way preventing the escape of water. Steam is stopped by the thermostatic vent.

Under ordinary conditions, one-half pound pressure or less, the system will always be open to atmosphere with the water of condensation flowing back by gravity. Assume, however, that a pressure of several pounds has been secured on the boiler. In this case water will start to fill the receiver until the float closes the port opening sealing the system. Since the returns and radiator are connected to the boiler by means of the supply mains the pressure in the receiver will gradually equalize with that in the boiler. The condensation returns to the boiler by gravity due to the head which comes about be-

cause the receiver is 24 inches or higher above the water line. When the boiler pressure becomes normal, the float in the receiver lowers, allowing the system to vent to atmosphere. This cycle is repeated automatically whenever required.

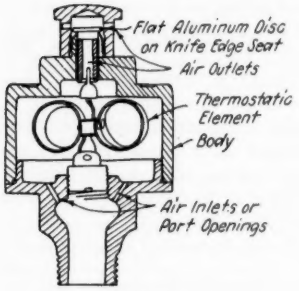


Fig. 4.

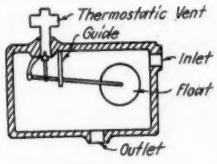


Fig. 5.

Radiator Trap Equalizes Pressure

THERE are other devices within one body acting on the same general principle as the combination receiver and vent.

Coming to the radiator trap system we are confronted with a different problem.

Considering Fig. 4 further, if a thermostatic radiator trap were used instead of the return fitting and we attempted to use the receiver instead of a direct return trap, steam generated in the boiler would fill the supply pipe and radiators up to the trap when the radiator trap would close. The receiver being vented through the thermostatic vent would be open to the atmosphere so that we would have a different pressure in the boiler supply pipe and radiators from that in the return pipe and receiver. Consequently, the water would fill the receiver and the float would close the float valve so that the system would become sealed, but, the traps being closed, there is nothing to equalize the pressure between the supply and return. The water, therefore, would not only fill the receiver but would continue to work up into the return lines and toward the radiators and the system would be unsafe. Because of the radiator trap it is easy to have two different pressures on the system, one on the supply side and another on the return; and because of the operation of the trap there is no means of equalizing this pressure unless some other device is used.

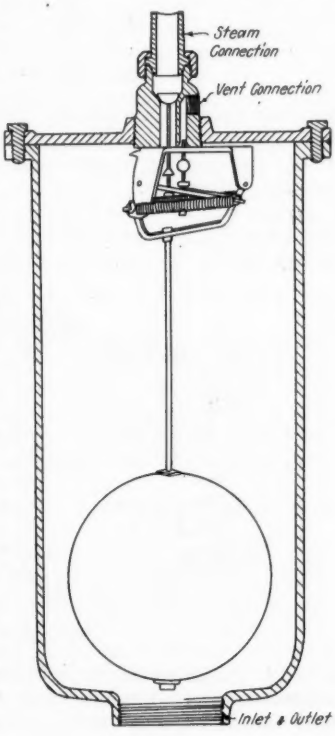


Fig. 6.

Consider Fig. 7 in connection with the sectional cut shown in Fig. 8. In case the fire is handled foolishly and steam generated in excess of the requirements, steam will fill the boiler, supply pipe and radiators up to the radiator trap. The radiator traps only allow the condensation and air to pass and consequently it is easy to secure a higher pressure in the boiler and radiators than in the return line. In this system you will notice that the air is vented through the float vent valve, and during the high pressure periods water of condensation will flow through the check valve into the return trap. This return trap is at the same pressure as the return line because it is connected through the vent opening in the top of the body into the return line. Consequently, the water will rise up into the body of the return trap, lifting the float until it reaches the top, snapping the mechanism which opens the steam supply and closes the vent connection. We will then have the same pressure in the return trap body as in the boiler, and the water will consequently be lowered, due to gravity, back into the boiler through the second check valve. When the water has again lowered to the bottom of the return trap, the mechanism is again operated, closing the steam valve and opening the vent valve so that the water in the returns will again flow into the return trap, and the operation will again be repeated.

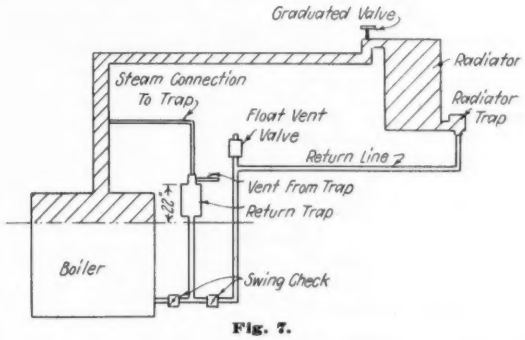


Fig. 7.

Return Connections at Boiler

FIG. 9 shows a standard connection which is usually recommended by manufacturers for use with vapor systems. Note that in case the returns are dropped into a wet return at some distance from the boiler, the connections will be similar to those shown dotted. The steam return is connected directly into the boiler return. It is advisable to remove the wheel on the gate valve shown between the steam return and boiler, so that the owner will not close it through carelessness and possibly cause considerable damage. The valve as well as the one in steam connection should always be open. Size of swing checks will vary with the amount of radiation; 1¼ inch is satisfactory up to 1,500 sq. ft., 1½ inch up to 2,500 sq. ft., 2 inch up to 6,000 sq. ft.

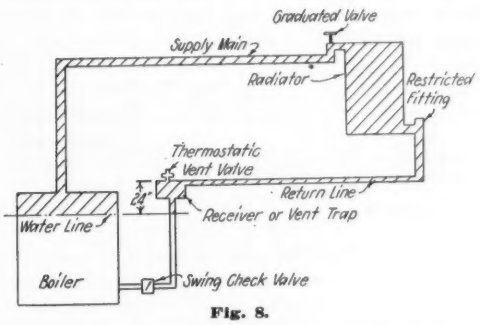


Fig. 8.

Fig. 10 shows a slightly modified connection on a one-pipe steam job. It is used when the pressure drop is

too great, allowing water to remain in the ends of the mains. This condition will result in water hammer and inefficient heating, which will be overcome by the return trap. Notice that it is preferable to have the trap not less than 22 inches above the water line, also that the return

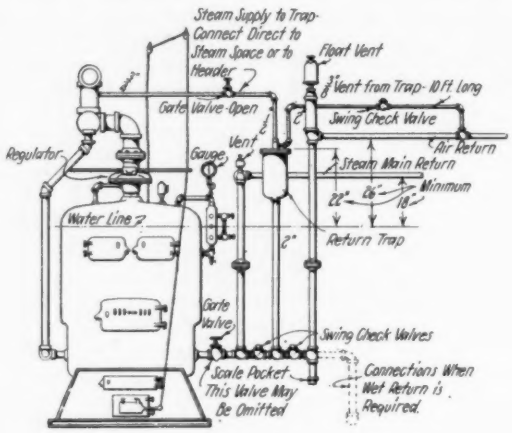


Fig. 9.

should, if possible, be slightly above the top of the trap, to assure complete drainage of the system at all times.

It is possible to have the return below the trap, in which case it is necessary to have sufficient pressure in it to force the water into the trap. (One pound pressure will lift water approximately two feet.)

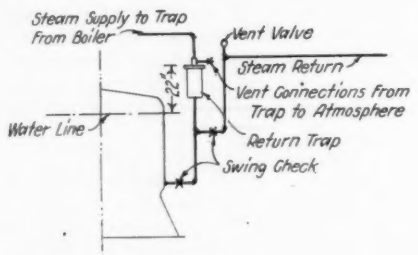


Fig. 10.

Fig. 11 shows the application in connection with a storage tank and water heater. One point in particular, which is very often omitted but is absolutely essential for successful operation is the vent valve shown on the return from the heater.

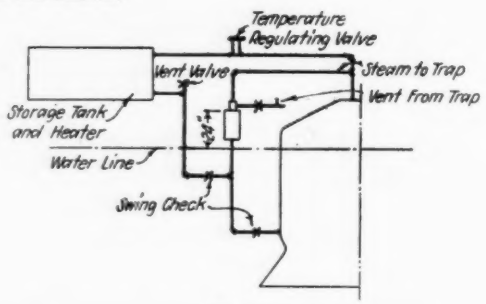


Fig. 11.

Tilting Traps for Large Installations

FOR larger installations the so-called "tilting trap" is often used. By referring to Fig. 12 the general construction can be seen. The water enters the right hand bearing through the inlet check valve A, passing up into the tank through the hollow trunnion, discharging the water leaves by the same path, only through the outlet check valve.

The tank becomes about two-thirds filled when its weight offsets the counterweight. This has a downward action on the tilt end, due to the tank being supported off of its center. The tilting action is for the purpose of opening and closing the air and steam valves in the right hand bearing.

When the trap is filling the steam valve is closed, when discharging it is opened to allow the steam pressure to enter the top of the tank and force the water out. The air valve is open when the steam valve is closed and closed when the steam valve is open and the trap discharging.

Fig. 13 shows the application of the tilting trap. This general scheme can be used when the apparatus is below the water line of the boiler but sufficient pressure is main-

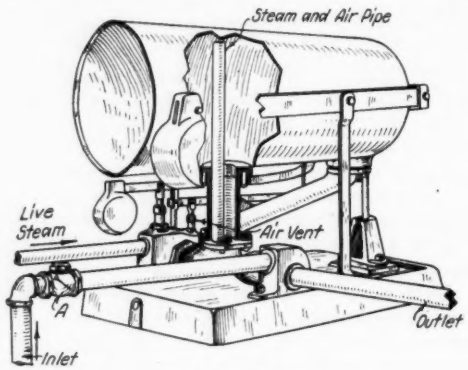


Fig. 12.

tained to force the condensation into the upper trap, which should usually be four feet above the water line. Laundries, dry cleaning establishments, etc., can usually be handled in this way.

Where full boiler pressure is not used on the steam apparatus it often becomes necessary to install what is known as the "Double Trap System" which is shown in

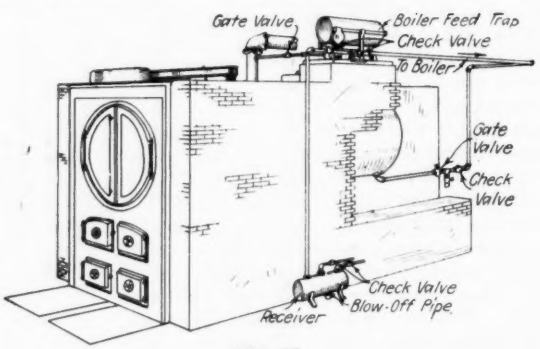


Fig. 13.

Fig. 14. In this case the lower trap lifts or forces the condensation into the upper trap from where it is forced back into the boiler. It is absolutely essential that the minimum boiler pressure in pounds be not less than one-half the distance between the upper and lower traps in feet.

Two Things to Remember

IN CONCLUSION, it may be well to caution the reader regarding two points which must be remembered.

Be absolutely sure that dry steam is secured to operate the trap. This together with a full boiler pressure on the trap are very important.

(Continued on Page 113.)

The Spice of Advertising

Dealers and Contractors: One Advertising Editorial, with a border around it, is printed each week. Use these Editorials in your local newspaper advertising. They will stimulate public interest in plumbing and heating, cause people to appreciate your service to the community, help your business and increase sales without additional expense. Fit one a week into your ads.

How a Dealer Uses Our Advertising Editorials

A DEALER out West is very much taken with the Advertising Editorials. He has been using them for many weeks and, so he says, "they put something into my newspaper advertising that never was there before." With that as a starter, he goes on to say:

"At first I was a little dubious—skeptical may be a better word—as to the real value of these Editorials. But now I know they are a blessing. And I'll tell you why I know this. Instead of trying to sell the public plumbing and heating goods, the Editorials just talk about plumbing, heating, plumbers and such. They don't try to sell anybody anything. They flirt with the public, if you get what I mean. First they make a reader think one way, then they make him think another way, and after a while he thinks he wants what I have to sell. And he thinks he thought it all out himself. That's the best of it. For when a man sells himself, he's sold for keeps."

Later this dealer says this: "I have an ad in our local newspaper twice a week—every Wednesday and every Saturday. The Saturday space holds an Editorial. That makes 'em think. Wednesday my ad displays a fixture, and talks convenience, quality, price and all that. Thus on Saturdays I make people think, and on Wednesdays I follow up with reasons for buying the things they have been thinking about."

And as this dealer passes on he shouts, "Long live the Advertising Editorials!"

The Editorials seem to have a long life. This is their fifty-ninth week. They keep on keeping on because plumbing dealers and heating contractors keep on using them. We may run out of subjects one of these days, but, when we do, we can turn around and go back over the entire list. Each Editorial will stand repeating once a year. It is not a sin to repeat a thought. In fact, a weakness of business is that we don't repeat good thoughts often enough.

Don't think that because you know a lot of things about your business, the public knows these things also. It doesn't know anything until you tell it—and half the time it forgets half o' that.

The sure way of advertising or selling is to keep at it—keep repeating, say it again and again. Imagine your public as so many school children. And teach your public in the way that children are taught their letters and their multiplication tables. You can't repeat a thought too often.

A Series—No. 59

TAKING THE LID OFF

SUPPOSE the lid of a city—the surface of the ground—could be taken off, and then suppose you could stand where you could look down a few feet into the earth. Suppose all this could happen, what do you suppose you'd see?

You would see the very heart of modern civilization; you would see the veins and arteries of sanitation; you would see what makes great cities possible; you would see why we Americans are the healthiest, most energetic, richest people on earth.

And yet all you would see would be a mass of pipes. But oh! such pipes—pipes that carry health and happiness to humanity—pipes that carry disease and death to destruction.

If the great Victor Hugo were here to tell about the miles of pipes that cross and recross the foundation of an American city—why, say, his description of the sewers of Paris would read like a story for the kindergarten.

And all these pipes form the heart—the beginning and the end—of the plumbing profession.

Something for the Public

Associations and Dealers: On this side of this page each week is printed a short, easy-to-read story. Typewrite each one and pass it to your local editor for his reading columns. In time these stories will build a stronger public interest in sanitation, health, convenience and comfort. These stories are the kind of reading matter people read every day in their home newspapers.

Why a Plumber Goes Back for His Tools

O, YES, there's a reason, popular jokes to the contrary. The average plumber is no more absent-minded than any of us. He is just a normal, busy individual, with a desire to serve as often as he is needed and in the best way that he can.

Let's suppose for a moment. Suppose you phoned the doctor and in response to his "Hello," you'd say, "O, Doctor! Johnny is ill .... No, I'm not sure whether it's appendicitis or croup .... but do hurry!"

The plumber of humans arrives. He totes a little kit which holds a few instruments for emergency use. And suppose, after a hasty examination of the patient, an immediate operation is necessary. Your physician might have the necessary tools with him. And then again, he might have to hurry back to his office for them. You wouldn't blame him for doing so, seeing as how he didn't know exactly what was wrong—until he arrived on the scene.

This serves to illustrate the real reason why the plumber—the doctor of sanitation—returns to his shop for other tools. Nine times in ten he does not know what plumbing trouble he is running into until he gets on the job. And so he must retrace his steps and bring back the implements he needs.

If a plumber carried all his tools, and all the parts he might need, he'd be forced to haul a truck load of stuff. For there are over thirty thousand plumbing and heating parts that could be used any day on almost any job.

What's the answer? Simply this. When you call your plumber—just as you'd call your doctor—give all the details you can. By so doing you'll save time and money for yourself and extra steps for the plumber.

Instead of saying, "There's a leak in the bathroom," tell where the leak is located. If it's the lavatory faucet that leaks, say so. If there is a dripping of water into the closet bowl, say that. If a pipe leaks, or the water refuses to run out of the bath tub, or this or that or the other, try to be specific.

A washer is only a washer; a pipe is only a pipe; a fixture is only a fixture. But think of the many shapes, sizes and varieties of washers, pipes and fixtures. Just think of 'em. And then you'll see why a plumber goes back for his tools, or, we should say, why a plumber goes back.

Correct Fittings and Pipe in Modern Plumbing

Regulations Governing Soil and Vent Stacks and the Venting of Fixtures

Part V of "Model City Plumbing Code."

By Frank R. King

State Plumbing and Domestic Sanitary Engineer, Wisconsin State Board of Health.

Section 11. (a) **Grade of Horizontal Soil and Waste Pipes.**—All horizontal, drain, soil and waste pipes shall be run in practical alignment and at the uniform grade of ¼ inch per foot or more; but in no case shall the grade be less than ⅛ inch per ft., whether under cellar floor or supported by piers, posts, wall ledges or iron hangers. Wherever conditions make it impossible to maintain a grade of ⅛ inch per ft. the plumbing inspector shall decide the proper grade but in no case will a grade less than 1/16 inch per ft. be permitted (See cleanouts Sec. 22 c).

(b) **Changes in Direction.**—All changes of direction shall be made with the proper use of Y's, sanitary T's, sixth, eighth, sixteenth or long radius one-quarter bends or a combination of any of such fittings. (Also see Chart C and accompanying sketch.)

(c) **To Increase or Reduce Size of Pipes.**—Proper fittings of sanitary design shall be used to increase or reduce size of pipes.

Section 12. (a) **Hangers and Supports.**—All drainage and plumbing pipes shall be rigidly secured and supported so that the proper alignment will be retained. All hangers, pipe supports and fixture settings in or against masonry, concrete or stone backing, shall be securely made with expansion bolts or other approved methods without the use of wood plugs.

(b) **Backgrounds.**—Backgrounds, except under special conditions, must be provided for the securing of closets, tanks, basins, sinks, brackets and all other wall fixtures or hangings.

(c) **Stack Supports.**—All stacks shall be thoroughly supported at their bases; and those 10 ft. or more in height shall also be provided with floor rests or other substantial supports at intervals; and all that part of any vent stack running more than three ft., either horizontally or on an angle of 45 degrees under the roof, shall be thoroughly secured to the rafters with substantial band or bar iron.

All stacks shall have a long radius bend at their base and shall be thoroughly supported on concrete, masonry piers or foot rests.

When tile pipe is used for the house drain, opening to all fixtures or stacks shall terminate with extra heavy cast iron long rest bends not less than four inches in diameter. In cases where it is impossible to use the rest bend, a four-inch one-quarter bend of at least nine-inch radius may be used, with a piece of extra heavy cast iron pipe not less than one ft. long calked on the horizontal to insure stability.

All pipe supports shall be made of heavy iron posts, wall hangers, pipe brackets, steel fittings, or concrete or masonry piers.

All brick piers shall be laid up with cement mortar and at least eight inches square.

In cases where soil, waste or vent stacks are tested separate from the house drain it is important that the connection between the stack and house drain be made carefully and in a manner so as to make for a substantial, properly set, water and air tight joint. (For recommendable method see Fig. 18.)

QUALITY AND WEIGHT OF MATERIALS

Section 13. **Vitrified Pipe.**—All vitrified pipe and fittings shall be first quality vitrified clay pipe, sound and well burned throughout their thickness, with well-glazed smooth exterior and interior surfaces, free from cracks, flaws, blisters, fire checks and all other imperfections which would impair their value.

Section 14. (a) **Cast Iron Pipe.**—All cast iron pipe fittings shall be made of close-grained gray iron, ductile

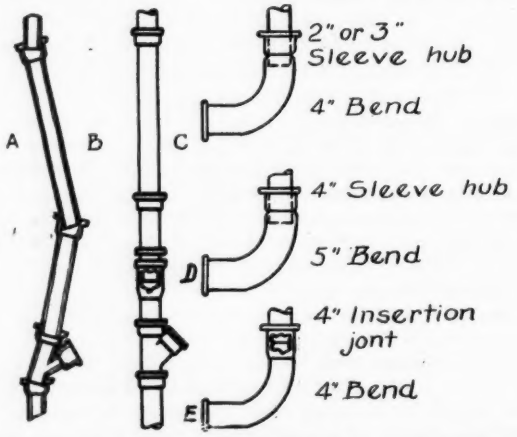


Fig. 18.—A and B Illustrating Methods of Inserting Soil Pipe Fittings or Joining Cast Iron Pipe, C, D and E Suggesting Methods of Connecting Soil, Waste and Vent Stacks to Underground House Stacks. (Section 12 c).

and readily cut with file or chisel, smooth on the inside, free from flaws, sand holes or other defects and of a uniform thickness. Such pipes and fittings shall not be lighter than the commercial grade known as "extra heavy" soil pipe.

(b) **Weights of Cast Iron Pipe and Fittings.**—All cast iron pipe, including hubs, shall weigh not less than the weights per ft. given in the following chart. Wall thickness of such fittings and the hubs thereof shall correspond with that of the pipe of the same size and kind.

Wall Thickness.—A variation of possibly one thirty-second of an inch less than the figures above will be permitted, but only if the actual weight is not less than the estimated weight.

CHART B.

Weights of Cast Iron Pipe and Fittings

Diameter	Standard Weight per ft.	Extra Heavy Weight per ft.
2 inch	3½ pounds	5½ pounds
3 inch	4½ pounds	9½ pounds
4 inch	6½ pounds	13 pounds
5 inch	8-2/5 pounds	17 pounds
6 inch	10-1/5 pounds	20 pounds
7 inch	.....	27 pounds
8 inch	.....	33½ pounds

The wall thickness and depths of hubs for extra heavy cast iron pipe are shown in the following tables:

Wall Thickness of Extra Heavy Cast Iron Pipe

Barrel	¼ inch
Body of hub	5/16 inch
Bead of hub	⅛ in. thicker than hub
Bead of spigot	⅛ in. thicker than spigot
Width of bead	

Depth of Extra Heavy Cast Iron Hubs

2 inch	2¼ inches
3 inch	2½ inches
4 inch to 6 inch	2¾ inches

Width of Beads of Extra Heavy Cast Iron Hubs

2 inch	⅝ inch
3 inch	11/16 inch
4 inch to 6 inch	¾ inch

Minimum Inside Diameter of Extra Heavy Cast Iron Hubs

2 inch	3 3/16 inches
3 inch	4 3/16 inches
4 inch	5 3/16 inches
5 inch	6 3/16 inches
6 inch	7 3/16 inches

Maximum Outside Diameter of Extra Heavy Spigot Bead

2 inch	2⅞ inches
3 inch	3⅞ inches
4 inch	4⅞ inches
5 inch	5⅞ inches
6 inch	6⅞ inches

Minimum Width of Extra Heavy Spigot Bead

2 inch	9/16 inch
3 inch	5/8 inch
4, 5 and 6 inch	11/16 inch

Calking Room Fittings.—The spigot end, including the bead of every fitting, must be straight without offset or change in direction for at least four inches.

Calking Room Traps.—The calking room at spigot end shall not be less than five inches.

Note:—All extra heavy cast iron pipe and fittings from two to six inches in diameter must be marked with the manufacturer's name or appropriate initials on same. Inside diameter of the barrel of any extra heavy pipe or fittings or branch thereof shall not be less than ⅛ inch less than the nominal size of same, except for the unavoidable irregularities, the full nominal bore must be maintained.

(c) **Coating for Cast Iron Pipe and Fittings.**—All pipe and fittings shall be coated with asphaltum or coal tar pitch. Both pipe and coating shall be heated to a temperature of 300 degrees Fahr. before the castings are dipped.

CHART C

Showing Radius of Cast Iron Soil Pipe Fittings When Change of Direction Is Made*

(Case A)—When direction of flow changes from horizontal to vertical.

Size of pipe	2"	3"	4"	5"	6"
Minimum Radius	3"	3½"	4"	4½"	5"

(Case B)—When direction of flow changes from vertical to horizontal, or when direction of flow is at right angles and changes from horizontal to horizontal.

Size of pipe	2"	3"	4"	5"	6"
Minimum Radius	5"	5½"	6"	6½"	7"

(d) **Short Radius Fittings, When Permitted.**—A combination Y and ⅛ bend or Y and ⅛ bend are recommended. When a pipe of smaller diameter enters a pipe of greater diameter, a fitting with a minimum radius as shown under Case A may be used.

When sanitary T's or wiped branches are used in change of direction they shall be so installed or arranged that the flow from other fixtures will serve as a wash.

Section 15 (a) **Wrought Iron Pipe.**—All wrought iron or mild steel pipe, known to the trade as merchant or full weight pipe, used for soil, waste or vent pipes, shall be galvanized and not lighter than shown in the following chart:

Chart D

Diameter	Weight per Lineal ft.
1½ inches	2.73 pounds
2 inches	3.68 pounds
2½ inches	5.82 pounds
3 inches	7.62 pounds
3½ inches	9.20 pounds
4 inches	10.89 pounds
4½ inches	12.64 pounds
5 inches	14.86 pounds
6 inches	19.18 pounds
7 inches	23.77 pounds
8 inches	25.00 pounds

(b) **Screw Thread Fittings for Vents.**—Threaded fittings for vents and back vents shall be cast iron, galvanized, malleable or brass.

(c) **Screw Thread Fittings for Waste.**—All screw thread fittings used for soil and waste pipes shall be of cast or malleable iron or brass. Waste fittings shall be of the recessed, drainage fitting pattern; and they shall have a radius from face to center as given in Chart E. All iron screw thread fittings for soil or waste pipes shall be galvanized or asphaltum coated.

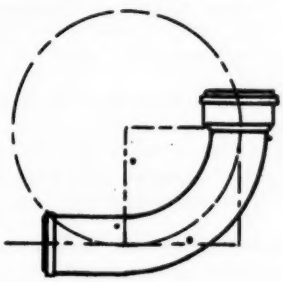


Fig. 19.

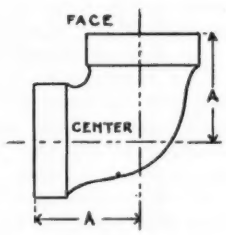


Fig. 20.

Fig. 19.—Showing Method of Determining Radius of Bends. (Section 14 d). Fig. 20.—Showing Method of Determining Radius of Screw Thread Drainage Fittings. (Section 15 c and Chart E).

Chart E.

Showing the Minimum Length of Face to Center of Drainage Fittings

Size of pipe	1¼"	1½"	2"	2½"	3"	4"	5"	6"
Distance from face to center	2¼"	2½"	3-1/16"	3-11/16"	4¼"	5-3/16"	6⅛"	7⅛"

Note: Long turn Y branches or Y and ⅛ bend are recommended.

Note: If for construction reasons the use of minimum radius fittings shown in Chart E is impractical, fittings of shorter radius may be used.

Section 16. **Prohibited Fittings and Connections.**—(a) Quarter bends with side or heel outlets, except when the branches are of sanitary pattern and all double hubs and double hub fittings, straight crossed (double tees) in vertical soil or waste stacks and offsets with less than one-fifth pitch are prohibited, and no double hub or inverted calk joint will be permitted in soil or waste lines.

(b) **Tapping of Soil or Waste Lines Prohibited.**—The drilling or tapping of soil, waste or vent lines or pipes or house drains to receive a waste pipe of any description is

*For method of determining radius see Fig. 19.

strictly prohibited and in no case will the use of saddles or bands be permitted.

(c) **Short Radius Fittings in Drains or Sewers Prohibited.**—The use of sanitary T's or quarter bends or any other short radius fitting will not be permitted in any house drain or sewer, horizontal to horizontal.

(d) **Double Hubs, Where Permitted.**—Double hubs and inverted calk joints may be used on rain water leaders, vent lines or stacks.

(e) **Sanitary T's and Crosses Where Permitted.**—Sanitary T's and crosses will be permitted in soil or waste stacks when connecting horizontal to vertical lines and the flow is towards the vertical stack. Sanitary T's and crosses may be used in horizontal soil or waste lines where other fixtures serve as a wash or when the branch is at least one size smaller than the pipe fitting.

Section 17. **Lead Pipe Bends and Traps, Weight of.**—All pipe used for branch, soil, waste, vent or flush pipes, including bends and traps, shall be the best quality of drawn lead pipe, of not less weight per lineal foot than shown in the following table:

Chart F

Inside Diameter	Weight per ft.
1 inch	2 lb. 0 oz.
1¼ inch	2 lb. 8 oz.
1½ inch	3 lb. 8 oz.
2 inch	4 lb. 0 oz.
3 inch	6 lb. 0 oz.
4 inch	8 lb. 0 oz.

Section 18. **Brass Pipe, Fittings, Tubing and Castings.** (a) **Brass Pipe.**—All brass pipe used for soil, waste and vents, except fixtures, traps and overflows, shall be of commercial iron pipe gauge.

(b) **Brass Fittings.**—All brass fittings for soil, waste or vent pipes shall be of a good quality of cast brass, having a thickness corresponding to brass pipe of the same diameter. The thickness of threaded ends must be equal to the thickness of the corresponding pipe size at the root of the thread.

(c) **Brass Tubing.**—All brass tubing used for fixtures, traps and overflows between wall or floor and fixtures shall be made of a good quality of brass and a thickness of at least equal to No. 18 Brown and Sharp gauge.

(d) **Traps and Overflows.**—All brass fittings used for fixtures, traps and overflows shall be of a good quality of brass, free from sand holes, flaws or other defects, and of a uniform thickness equal to twice the thickness of brass tubing. The thickness of the threaded ends shall be equal to the thickness of the fitting at the root of the thread.

(e) **Soldering Nipples.**—Soldering nipples shall be of heavy cast brass, straight bore or of brass pipe of iron weight, thickness and size. When cast they shall be of full straight bore and of not less than the weights given in the following chart:

Chart G

Weight of Soldering Nipples

Inside Diameter	Weights
1¼ inch	0 lb. 6 oz.
1½ inch	0 lb. 8 oz.
2 inch	0 lb. 14 oz.
2½ inch	1 lb. 6 oz.
3 inch	2 lb. 6 oz.
4 inch	3 lb. 8 oz.

(f) **Weight of Brass Ferrules.**—Brass ferrules shall be of a good quality of brass, composed of a mixture that will fuse readily with plumbers' solder, free from sand holes, flaws or other defects, uniform in thickness, and at least four and one-half inches long, of a size and weight as per the following chart:

Chart H

Inside Diameter	Weight
1½ inch	1 lb. 1 oz.
2 inch	1 lb. 4 oz.
3 inch	1 lb. 14 oz.
4 inch	2 lb. 8 oz.
5 inch	3 lb. 0 oz.
6 inch	3 lb. 8 oz.

TRAPS AND CLEANOUTS

Section 19 (a) **Traps.**—Each fixture, except those wasting as described in this section, shall be separately trapped by a water seal trap, placed as close to the fixture as practicable.

Every trap shall be self cleaning. No form of trap shall be used which depends upon the action of movable parts for its seal.

No trap shall be used which depends upon concealed interior partitions for its seal, unless such interior partitions are made of indestructible material.

No trap shall be used which in case of defect would allow the passage of sewer air.

Grease traps with integral cast partitions of indestructible materials may be used.

Traps for bath tubs, basins, sinks or other similar fixtures shall be made of lead, brass or iron.

Each trap shall have a water seal of not less than two inches nor more than 7 inches.

Laundry trays, wash tubs, or similar fixtures may waste into single trap. The outlet waste pipe and trap of four compartments or two trays of two compartments each, back to back, shall be at least 2 inches in diameter.

Drum traps may be of lead, brass, galvanized iron or cast iron tarred, of a quality and weight as prescribed in this code. The diameter shall not exceed four inches and the water seal shall not be less than two inches nor more than seven inches. The top of iron or brass traps shall be tool faced and without flaws or ridges, to insure a tight joint between the trap and the trap screw. The trap screws or covers shall be of brass, not less than ⅛ of an inch thick and provided with a square or hexagonal nut not less than ⅜ of an inch thick.

The distance between the trap screw and the top waste opening shall not be less than two inches.

Drum Traps, Where Used.—Drum traps shall be used under all bathtubs, dental cuspidors, bars and soda fountains.

Drum traps placed between the floor shall have the trap screw in plain view or flush with the floor or so installed as to be readily accessible from under the floor.

For depth of trap seals see Chart I, and for size see Chart A.

Chart I

Depth of Seal for Common Traps

Size of Trap	1¼"	1½"	2"	3"	4"	5"	6"
Depth of Seal	2 "	2 "	2"	2"	2"	2"	2"

Deep seal traps shall be used on all basement floor drains. Depth of seal shall conform to the following chart and no such traps shall have a water seal of less than 4 inches nor more than six inches.

Chart J

Depth of Seal for Deep Seal Traps

Size of Trap	1¼"	1½"	2"	3"	4"	5"	6"
Depth of Seal	4 "	4 "	4"	4"	4"	4"	4"

(b) **Trap Clean-outs.**—All traps so placed that they are or can be made accessible shall be equipped with adequate brass screw clean-out plugs or covers, readily accessible except those which are integral parts of fixtures.

All traps which for installation reasons must be so placed as to be inaccessible shall not be provided with a clean-out trap screw or "trap cover" but may be provided with a taped boss and standard brass screw thread plug.

(To Be Continued)

Condensation and Vacuum Pumps for the Heating Plant

Also a Note on Automatic Sewage Ejectors with Illustration and Tables

By Ed. Cunningham

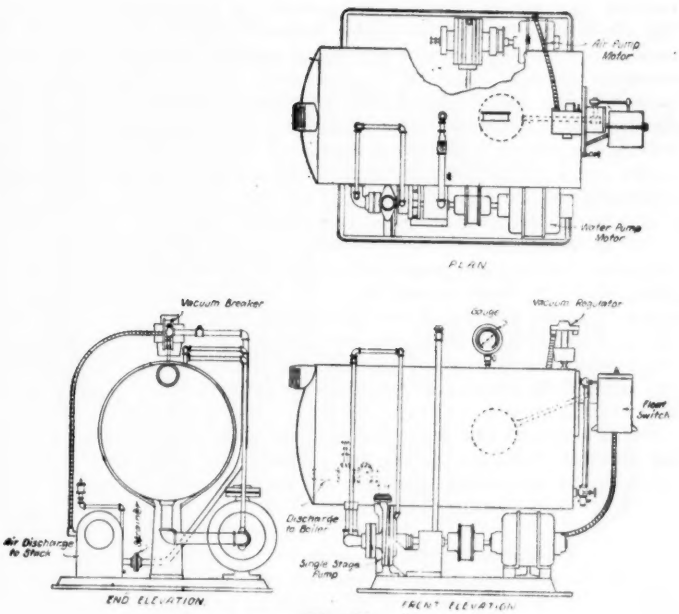


Fig. 32.

A PUMPING unit, adapted to heating work, and suitable for both pulling a vacuum on the system and delivering against pressure to the boiler is shown in Figs. 32 and 33, the first mentioned being the unit for low and medium boiler pressure, having a single stage centrifugal pump, and the second being the multi-stage unit for delivering against high boiler pressure. This type is a condensation-vacuum, return line pump and receiver.

These types consist of individual motor driven centrifugal pump for the condensation, and a separate motor driven vacuum air pump, all connected to a receiving tank, and having automatic vacuum and float control. All form an integral unit mounted ready for connection to the heating system.

The return line from the heating system, carrying both water and air, is connected directly to the threaded connection in the receiver head. The suction of the water pump is taken from near the bottom of the receiving tank, and is discharged by the pump directly to the boiler.

The motor of the water pump is controlled by a float switch in the receiver, which starts the condensation pump when the receiver is nearly full and stops it when the receiver has been emptied to a point near the bottom of the tank.

The vacuum or air pump maintains a vacuum on the

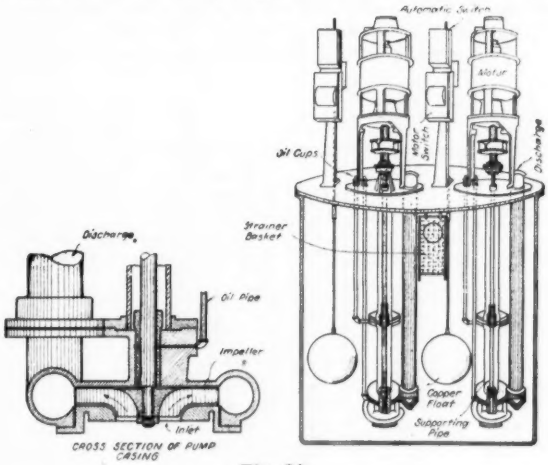


Fig. 34.

TABLE No. 22
Low Pressure — 10-Lb. with Type V Motor

Unit Numbers	Direct Radiation Maximum Square Feet	Pump Discharge Pressure in Pounds	Water Pump Motor Horse Power 1720 R. P. M.	Air Pump Motor Horse Power 1140 R. P. M.	Air Displacement Cubic Feet per Minute 10-Inch Vacuum	Gallons per Minute Condensed by Radiation Listed	Water Pump Capacity Gallons per Minute	Return Inlet of Receiver Pipe Size	Pump Discharge to Boiler Pipe Size	Receiver Capacity in Gallons	Size of Receiver in Inches
1040	8,000	10	¾	¼	6.3	4	12	3	1	44	19 x 36
1041	16,000	10	1	½	11.3	8	24	3	1¼	51	19 x 42
1042	26,000	10	1	¾	19.6	13	39	3	1½	66	19 x 54
1043	40,000	10	2	1	30.5	20	60	3	1½	127	25 x 60
1044	65,000	10	3	1½	44.2	32	96	3	2	153	25 x 72

TABLE No. 23
Medium Pressures with Type V Motors

1045	8,000	18	1	¼	6.3	4	12	3	1	44	19 x 36
1046	16,000	17	1½	½	11.3	8	24	3	1¼	51	19 x 42
1047	26,000	16	1½	¾	19.6	13	39	3	1½	66	19 x 54
1048	40,000	25	3	1	30.5	20	60	3	1½	127	25 x 60
1049	65,000	30	3	1½	44.2	32	96	3	2	153	27 x 72

receiver and return lines of the system, by exhausting the air through a pipe connection from the top of the receiver, to the air pump. A vacuum breaker prevents excessive vacuum when the system cools down. The vacuum pump discharges to the atmosphere, preferably piped to the boiler stack. The vacuum regulator operates within a range of two to ten inches of vacuum when return traps are reasonably tight. Each pump operates separately on the condensation and on the vacuum, so that any unusual condition is satisfactorily met.

For an installation of about 8,000 sq. ft. of direct heating surface, a ¾ horse power motor is used for the water pump, and a ¼ horse power motor for the air pump, in actual practice the air pump operating two to four times as frequently as the condensation pump, depending on the tightness of the job and the functioning of the traps on individual heating units.

The dimensions and capacities of these units are given in Table No. 22 for low pressure, in Table No. 23 for medium pressure, and in Table No. 24 for high pressures.

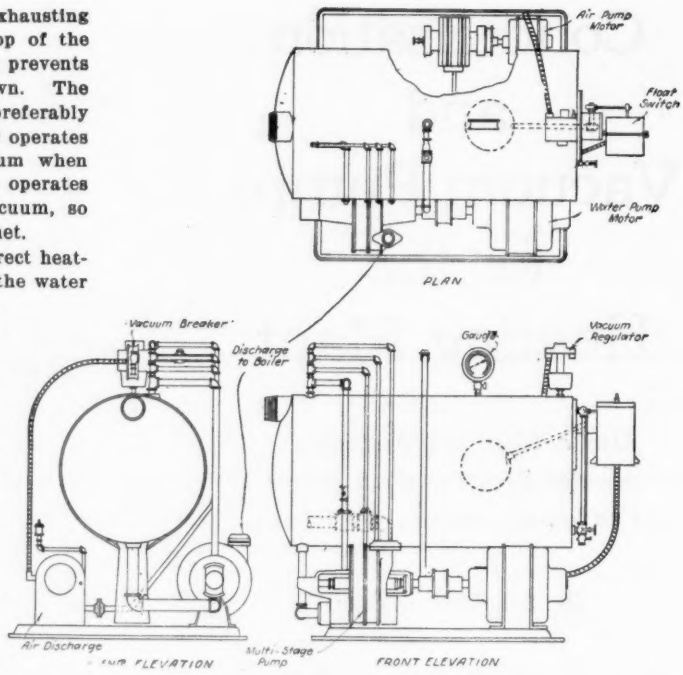


Fig. 33.

Automatic Sewage Ejectors

A TYPE of pump, of much interest to the trade, is shown in Fig. 34. This is an adaptation of the bilge pump for service as an automatic electric sewage ejector, and is made by the same company as the first previously described condensation-vacuum pump. The sewage ejector, as its name indicates, is designed for sewage removal, and has a specially constructed centrifugal pumping unit on a vertical extended shaft, designed to operate in a submerged position, and having a motor direct connected to the shaft at an upper position. The pump is started and stopped by means of a float controller switch. This style of pump may be used also in manufacturing operations to handle heavy liquids, or those containing

TABLE No. 24

High Pressures with M Type Motor

Unit Number	Direct Radiation Maximum Square Feet	Pump Discharge Pressure in Pounds	Water Pump Motor Horse Power 1720 R. P. M.	Air Pump Motor Horse Power 1140 R. P. M.	Air Displacement Cubic Feet per Minute 10-Inch Vac.	Gallons per Minute Condensed by Radiation Listed	Water Pump Capacity Gallons per Minute	Return Inlet of Receiver Pipe Size	Pump Discharge to Boiler Pipe Size	Receiver Capacity in Gallons	Size of Receiver in Inches	Type and Frame No. of Pump Furnished	Shipping Weight Approximate Weight Pounds
1401	8,000	12	¾	¼	6.3	4	12	3	1	44	19 x 36	MA-1	976
1402	8,000	18	1	¼	6.3	4	12	3	1	44	19 x 36	MA-1	1,010
1403	8,000	30	1½	¼	6.3	4	12	3	1	44	19 x 36	MA-2	1,075
1404	8,000	40	2	¼	6.3	4	12	3	1	44	19 x 36	MA-2	1,110
1405	8,000	62	3	¼	6.3	4	12	3	1	44	19 x 36	MA-3	1,175
1406	8,000	84	5	¼	6.3	4	12	3	1	44	19 x 36	MA-4	1,290
1407	8,000	106	5	¼	6.3	4	12	3	1	44	19 x 36	MA-5	1,375
1410	16,000	11	1	½	11.3	8	24	3	1¼	51	19 x 42	MA-1	1,035
1411	16,000	17	1½	½	11.3	8	24	3	1¼	51	19 x 42	MA-1	1,060
1412	16,000	20	1½	½	11.3	8	24	3	1¼	51	19 x 42	MA-2	1,090
1413	16,000	26	2	½	11.3	8	24	3	1¼	51	19 x 42	MA-2	1,225
1414	16,000	37	3	½	11.3	8	24	3	1¼	51	19 x 42	MA-2	1,265
1415	16,000	46	3	½	11.3	8	24	3	1¼	51	19 x 42	MA-3	1,315
1416	16,000	58	5	½	11.3	8	24	3	1¼	51	19 x 42	MA-3	1,425
1417	16,000	79	5	½	11.3	8	24	3	1¼	51	19 x 42	MA-4	1,495
1418	16,000	100	7½	½	11.3	8	24	3	1¼	51	19 x 42	MA-5	1,625
1419	16,000	120	7½	½	11.3	8	24	3	1¼	51	19 x 42	MA-6	1,680
1421	26,000	16	1½	¾	19.6	13	39	3	1½	66	19 x 54	MA-1	1,090
1422	26,000	18	1½	¾	19.6	13	39	3	1½	66	19 x 54	MA-2	1,125
1423	26,000	23	2	¾	19.6	13	39	3	1½	66	19 x 54	MA-2	1,150
1424	26,000	35	3	¾	19.6	13	39	3	1½	66	19 x 54	MA-2	1,275
1425	26,000	44	3	¾	19.6	13	39	3	1½	66	19 x 54	MA-3	1,310
1426	26,000	55	5	¾	19.6	13	39	3	1½	66	19 x 54	MA-3	1,385
1427	26,000	71	5	¾	19.6	13	39	3	1½	66	19 x 54	MA-3	1,480
1428	26,000	75	5	¾	19.6	13	39	3	1½	66	19 x 54	MB-2	1,560
1429	26,000	96	7½	¾	19.6	13	39	3	1½	66	19 x 54	MA-4	1,700
1430	26,000	110	7½	¾	19.6	13	39	3	1½	66	19 x 54	MA-5	1,750
1431	40,000	15	2	1	30.5	20	60	3	1½	127	25 x 60	MB-1	1,200
1432	40,000	25	3	1	30.5	20	60	3	1½	127	25 x 60	MB-1	1,260
1433	40,000	34	5	1	30.5	20	60	3	1½	127	25 x 60	MB-1	1,320
1434	40,000	45	5	1	30.5	20	60	3	1½	127	25 x 60	MB-2	1,380
1435	40,000	67	7½	1	30.5	20	60	3	1½	127	25 x 60	MB-2	1,670
1436	40,000	90	10	1	30.5	20	60	3	1½	127	25 x 60	MB-3	1,780
1437	40,000	102	15	1	30.5	20	60	3	1½	127	25 x 60	MB-3	1,890
1441	65,000	15	3	1½	44.2	32	96	3	2	153	25 x 72	MB-1	1,280
1442	65,000	28	5	1½	44.2	32	96	3	2	153	25 x 72	MB-1	1,360
1443	65,000	33	7½	1½	44.2	32	96	3	2	153	25 x 72	MB-1	1,695
1444	65,000	45	7½	1½	44.2	32	96	3	2	153	25 x 72	MB-2	1,780
1445	65,000	61	10	1½	44.2	32	96	3	2	153	25 x 72	MB-2	1,820
1446	65,000	93	15	1½	44.2	32	96	3	2	153	25 x 72	MB-3	1,935

TABLE No. 25

Table of Capacities of Sewage Ejectors at 1720 R. P. M.

Unit No.	Type of Pump and Frame No.	Capacity in G. P. M.	Size of Discharge in Inches	Will Pump Against Head in Feet at 1720 R. P. M.	Horse Power of Motor Furnished	Approximate Shipping Weight	Diameter Smallest Basin Recommended for Single Pump	Diameter Smallest Basin Recommended for Double Pump
H-700	LG	75	2½	12	¾	690	36	42
H-701	LG	75	2½	13	1	705	36	42
H-702	L-3	75	3	18	1½	835	36	42
H-703	L-3	75	3	25	2	877	36	42
H-704	L-3	75	3	41	3	1,147	36	42
H-705	L-3	75	3	58	5	1,247	36	42
H-706	L-3	100	3	12	1	817	36	42
H-707	L-3	100	3	14	1½	835	36	42
H-708	L-3	100	3	21	2	877	36	42
H-709	L-3	100	3	32	3	1,147	36	42
H-710	L-3	100	3	53	5	1,247	36	42
H-711	L-3	100	3	68	7½	1,482	36	42
H-712	L-3	125	3	12	1½	835	42	48
H-713	L-3	125	3	17	2	877	42	48
H-714	L-3	125	3	28	3	1,147	42	48
H-715	L-3	125	3	49	5	1,247	42	48
H-716	L-3	125	3	58	7½	1,482	42	48
H-717	L-3	150	3	12	1½	835	42	48
H-718	L-3	150	3	16	2	877	42	48
H-719	L-3	150	3	24	3	1,147	42	48
H-720	L-3	150	3	42	5	1,247	42	48
H-721	L-3	150	3	52	7½	1,482	42	48
H-722	L-4	150	3	64	10	1,755	42	48
H-723	L-3	200	4	12	2	877	42	48
H-724	L-3	200	3	19	3	1,147	42	48
H-725	L-3	200	3	32	5	1,247	42	48
H-726	L-3	200	3	49	7½	1,482	42	48
H-727	L-4	200	3	62	10	1,755	42	48
H-728	L-4	250	4	10	2	1,105	48	60
H-729	L-4	250	4	17	3	1,375	48	60
H-730	L-4	250	4	29	5	1,475	48	60
H-731	L-4	250	4	43	7½	1,575	48	60
H-732	L-4	250	4	58	10	1,755	48	60
H-733	L-4	250	4	15	3	1,375	48	60
H-734	L-4	300	4	24	5	1,475	48	60
H-735	L-4	300	4	34	7½	1,575	48	60
H-736	L-4	300	4	48	10	1,755	48	60
H-737	L-4	350	4	12	3	1,375	48	60
H-738	L-4	350	4	22	5	1,475	48	60
H-739	L-4	350	4	34	7½	1,575	48	60
H-740	L-4	350	4	43	10	1,755	48	60
H-741	L-4	350	4	57	15	1,805	60	60
H-742	L-4	400	4	10	3	1,375	60	60
H-743	L-4	400	4	19	5	1,475	60	60
H-744	L-4	400	4	31	7½	1,575	60	60
H-745	L-4	400	4	39	10	1,755	60	60
H-746	L-4	400	4	52	15	1,375	60	72
H-747	L-5	500	5	10	3	1,475	60	72
H-748	L-5	500	5	16	5	1,575	60	72
H-749	L-5	500	5	25	7½	1,755	60	72
H-750	L-5	500	5	33	10	1,805	60	72
H-751	L-5	500	5	36	15	1,375	60	72
H-752	L-5	750	5	11	5	1,655	.....	.....
H-753	L-5	750	5	17	7½	1,755	.....	.....
H-754	L-5	750	5	23	10	1,935	.....	.....
H-755	L-5	750	5	35	15	2,085	.....	.....
H-756	L-5	1,000	6	8	5	1,655	.....	.....
H-757	L-5	1,000	6	13	7½	1,755	.....	.....
H-758	L-5	1,000	6	17	10	1,935	.....	.....
H-759	L-5	1,000	6	27	15	2,085	.....	.....
H-760	L-5	1,000	6	34	20	2,205	.....	.....
H-761	L-5	1,250	6	10	7½	1,755	.....	.....
H-762	L-5	1,250	6	14	10	1,935	.....	.....
H-763	L-5	1,250	6	21	15	2,085	.....	.....
H-764	L-5	1,250	6	27	20	2,205	.....	.....
H-765	L-5	1,250	6	33	25	2,435	.....	.....
H-766	L-5	1,500	6	10	10	1,935	.....	.....
H-767	L-5	1,500	6	15	15	2,085	.....	.....
H-768	L-5	1,500	6	20	20	2,205	.....	.....
H-769	L-5	1,500	6	25	25	2,435	.....	.....

TABLE No. 26

Table of Capacities of Sewage Ejectors at 1140 R. P. M.

Unit No.	Type of Pump and Frame No.	Capacity in G. P. M.	Size of Discharge in Inches	Will Pump Against Head in Feet at 1140 R. P. M.	Horse Power of Motor Furnished	Approximate Shipping Weight	Diameter Basin Recommended for Single Pump	Diameter Basin Recommended for Double Pump
H-300	L-3	75	3	8	¾	800	36	42
H-301	L-3	75	3	11	1	817	36	42
H-302	L-3	75	3	16	1½	835	36	42
H-303	L-3	75	3	22	2	877	36	42
H-304	L-3	75	3	32	3	1,147	36	42
H-305	L-3	100	3	7	¾	800	36	42
H-307	L-3	100	3	10	1	817	36	42
H-308	L-3	100	3	15	1½	835	36	42
H-309	L-3	100	3	21	2	877	36	42
H-310	L-4	100	4	30	3	1,375	36	42
H-311	L-4	100	4	38	5	1,475	36	42
H-312	L-3	125	3	8	1	817	42	48
H-313	L-3	125	3	13	1½	835	42	48
H-314	L-3	125	3	17	2	1,877	42	48
H-315	L-3	125	3	26	3	1,147	42	48
H-316	L-4	125	4	37	5	1,475	42	48
H-317	L-3	150	3	11	1½	835	42	48
H-318	L-3	150	3	15	2	877	42	48
H-319	L-3	150	3	23	3	1,147	42	48
H-320	L-4	150	4	36	5	1,475	42	48
H-321	L-3	150	3	12	2	877	42	48
H-322	L-3	200	3	19	3	1,147	42	48
H-323	L-4	200	4	32	5	1,475	42	48
H-324	L-4	200	4	34	7½	1,575	42	48
H-325	L-3	250	3	10	2	877	48	60
H-326	L-3	250	3	16	3	1,147	48	60
H-327	L-4	250	4	27	5	1,475	48	60
H-328	L-4	250	4	33	7½	1,575	48	60
H-329	L-4	300	4	14	3	1,375	48	60
H-330	L-4	300	4	23	5	1,475	48	60
H-331	L-5	300	5	35	7½	1,755	48	60
H-332	L-5	300	5	45	10	1,935	48	60
H-333	L-4	350	4	12	3	1,375	48	60
H-334	L-4	350	4	21	5	1,475	48	60
H-335	L-5	350	5	31	7½	1,755	48	60
H-336	L-5	350	5	42	10	1,935	48	60
H-337	L-5	400	5	11	3	1,555	60	60
H-338	L-5	400	5	19	5	1,655	60	60
H-339	L-5	400	5	28	7½	1,755	60	60
H-340	L-5	400	5	38	10	1,935	60	60
H-341	L-5	400	5	44	15	2,085	60	60
H-342	L-5	500	5	9	3	1,555	60	72
H-343	L-5	500	5	15	5	1,655	60	72
H-344	L-5	500	5	23	7½	1,755	60	72
H-345	L-5	500	5	30	10	1,935	60	72
H-346	L-5	500	5	42	15	2,085	60	72
H-347	L-5	750	5	10	5	1,655	.....	.....
H-348	L-5	750	5	16	7½	1,755	.....	.....
H-349	L-5	750	5	21	10	1,935	.....	.....
H-350	L-5	750	5	32	15	2,085	.....	.....
H-351	L-5	750	5	40	20	2,205	.....	.....
H-352	L-5	1,000	6	7	5	1,655	.....	.....
H-353	L-5	1,000	6	11	7½	1,755	.....	.....
H-354	L-5	1,000	6	15	10	1,935	.....	.....
H-355	L-5	1,000	6	23	15	2,085	.....	.....
H-356	L-5	1,000	6	30	20	2,205	.....	.....
H-357	L-5	1,000	6	38	25	2,435	.....	.....
H-358	L-5	1,250	6	6	5	1,755	.....	.....
H-359	L-5	1,250	6	10	7½	1,855	.....	.....
H-360	L-5	1,250	6	13	10	1,935	.....	.....
H-361	L-5	1,250	6	20	15	2,085	.....	.....
H-362	L-5	1,250	6	26	20	2,205	.....	.....
H-363	L-5	1,250	6	33	25	2,435	.....	.....
H-364	L-5	1,500	6	5	5	1,655	.....	.....
H-365	L-5	1,500	6	7	7½	1,755	.....	.....
H-366	L-5	1,500	6	10	10	1,935	.....	.....
H-367	L-5	1,500	6	15	15	2,085	.....	.....
H-368	L-5	1,500	6	20	20	2,205	.....	.....
H-369	L-5	1,500	6	25	25	2,435	.....	.....
H-370	L-5	1,500	6	30	30	2,650	.....	.....

solid particles, such as soap liquid, heavy oils, pulp, etc. The capacities and dimensions are given in Table Nos. 25 and 26.

Points to be remembered in selecting a sewage ejector are: It should have all parts visible, and easy of access. It should not be necessary to have to climb down into the pit to regulate valves. The ejectors should be of such design and capacity that if it should become necessary to remove one, the other should render service after the second one has been disconnected. This also should be done without the necessity of having to climb down into the pit or sump.

Valid Covenant by Seller

A Recent Legal Decision of Interest

Where a proprietor sells out a given business, and as a part of the contract covenants not to engage in a similar business in a particular locality, if such covenant is reasonable and otherwise proper, it will not be set aside as void on the ground that it is in restraint of trade and contrary to public policy. Such covenant will be reasonable and proper, if it only affords a fair protection to the party in whose favor it is made, and is not injurious to the public. And, where it is of such character, it may extend to all the territory covered by the business, the good will of which has been sold.—Supreme Court of Georgia, in Legg et al. v. Hood, 113 S. E. Reporter, 642.

An Example of Unprofitable Heating Work

Contractor Makes 5 Per Cent Gross on $5,600 Contract to Install Steam Heat in 30-Flat Building—Labor Figured on Basis of Approximately $5 Per Radiator, Two Men Installing Three Radiators or More Per Day

By F. C. Clements

THIS is a story of a conservative heating contractor who took a "flyer" at the other fellow's method of doing business, and found that it didn't pay. His experiment did not emanate from a desire to "beat" the other fellow at all. He was shown, and very conclusively, that competitive flat work is best left alone, because it's too risky.

Preliminary to reciting the facts of this case, it might be well to form the proper background by stating that our city is now completing one of the most active building years it has ever known. As a matter of fact, all records have been broken. Strange to say, the bulk of the heating work has been taken cheap, and an analysis of books would undoubtedly prove that few, if any, contractors have made money—that is, in proportion to the volume of business.

Flat buildings and stores and flats, ranging from modest investments of a few thousand dollars all the way up into the hundreds of thousands, have constituted the greater part of our construction activity. Also, the work has been largely speculative. Tempted by the post-war period of inflated rents, speculators apparently saw a harvest in flats and pushed their hunch to the limit, ably assisted by the mortgage bankers.

The boom got under way at a time when the labor situation was serious. With the building trades idle, quite a few steam fitters went into business for themselves, an easy solution to non-employment in a city where no license is required in order to become a master steam fitter. The result was that by the time the building program was in full swing, after labor troubles were settled, probably more than twice the number of heating contractors were in business than heretofore. As the year developed there was a shortage of both men and materials, and, while the scale of wages was 95 cents per hour, $1.25 became the prevailing scale, and was often exceeded.

This combination of circumstances faced the conservative heating contractor who takes the leading part in the play entitled, "I'm From Missouri." Like many others of his type, he regarded conditions as unstable, but because work was largely confined to flats, he went ahead figuring them, adding 10 per cent for overhead above the actual cost of labor and materials, and 10 per cent profit. He never landed a job. Here is a copy of the estimate for the job to be discussed later:

Estimate for Steam Heating Plant for 30-Flat Building	
Boiler, 6,500 ft.	$ 983.15
Brickwork	230.00
Permits	14.00
Boiler cartage	120.00
Breeching	20.00
Radiation, 4,800 ft.	1,235.00
Painting radiators	120.00
Pipe and fittings	720.00
Radiator valves	155.18
Valves, cocks and checks	30.00
Air valves	34.00
Labor, 164 units @ $8.00	1,300.00
Casualty insurance	15.00
Cartage of radiation, tools	96.00
Washing out system	65.00
Cost of labor and materials	$5,137.33
Overhead	513.73
Cost of job	$5,651.06
Profit, 10 per cent	565.10
	$6,216.16

Where the Dollar Goes, If You Do Business as Some Do.

This bid was submitted for a typical apartment building of its size—a 3-story brick building, U-shaped, with a court, 10 flats to a floor and janitor's quarters in the basement. It has an exposed wall surface of 4,800 sq. ft. and heating requirements were computed on the basis of 1 sq. ft. of direct radiation for each foot of exposed wall, distributed, in this case throughout the building, in 164 units.

No statistician is required to point out that, even if he had landed the job at the figure submitted, he would not have made a fortune. The heating contractor in question is, in the parlance of the trade, one who "knows the game," being a capable engineer, a shrewd buyer, and with a reputation for good work.

Before the job was finally awarded the contractor was informed that he was too high. This was nothing new for him to hear, and he knew that there were scores of firms in town ready to gobble up the job for less than his price. He naturally wondered, "How do they do it?" He made inquiries, directly or indirectly, how other concerns were able to figure so low, apparently get by to the extent that they would take other jobs right along on identically the same basis. His information boiled down to the fact that such jobs were being figured on the basis of approxi-

mately $5 per radiator, with two men installing three or four radiators per day. In other words, with 95-cent labor, two men working eight hours would earn $15.20, which divided by three would figure out $5.07 per radiator, or $3.80 per unit, divided by four. Compared with his estimate of labor of $8 per unit, he saw where he wasn't getting anywhere—presuming an equal buying power between himself and his competitors—a fair assumption. Had flat work, in bulk, become so simple that labor could be cut in half? Mr. Conservative Heating Contractor resolved to see for himself if it could be done. He cut $650 off his labor and took the job in round figures for $5,600. When signing up for the job he insisted on the right to place the radiators wherever he saw fit—guaranteeing a good job naturally. This provision meant economies in installation by being able to place radiators on each side of a partition, using a cross, four ells and six nipples to rough in two radiators thus placed.

At the price taken the job represented $1.17 a foot. He was congratulated by more than one firm for taking the job at a "good" price, being further informed that many were going for $1, or even less. The work was located about 10 miles from his shop, the contractor's home being about half way between these points. With the exception of radiator valves, air valves, tools and a few odds and ends, everything was delivered direct to the building where the installation was to be made.

The job was not "skinned." Mains were carried full size, when they might have been cut to the minimum after every drip to bring about a small saving. From two to seven men were employed and the work progressed satisfactorily without lost time, the contractor being in close touch with the work all the time. All records were filed in the office for a careful and final check on the job at completion.

Final figures, compared with the original estimate, brought out that the contractor was right on his breeching, cartage, painting, valves, boiler and radiation costs. Pipe and fittings ran a trifle higher, and one item of $30 for a cleanout door was overlooked, but this was offset by a saving on the cost of washing out the system.

With careful superintendence, under the direction of the contractor himself, the labor on this job actually cost $1,185.02. This figures out at $7.22 per radiator, very close to the original estimate, based on years of experience, at $8.

The contractor's gross "profit" on the job was less than $300, or approximately 5 per cent on the contract price.

It is common knowledge that that work is being taken today on a $5 basis, and repeatedly by the same firms (but not any more by the conservative contractor).

What's the answer?

Soliloquies of a Pipe Wrench

"He Thinks with His Hands But Not With His Head" Says He

WELL, this has been a hard day. Believe me, biting into two-inch pipe all day is no fun. But it makes a fellow think. When I get home, after a hard day's work, about all I do is lie around and think. I'll bet that in the last month I've thought of enough things to fill a book. For instance, there's Jim. He's my boss. He thinks with his hands, but not with his head. If he used his brains, he could see the opportunities right under his nose. There's that store on Main Street, a fine location, and only $5 a month more than what he pays here in this dark hole where I sleep, yet he spends more than that every week for cigars.

He took me to his home a few days ago and I met his wife and the kids. Along in the evening a neighbor dropped in, and, casual like, so as not to excite suspicion that he wanted to buy, asked Jim what a complete bathroom would cost. I knew at once that he didn't want to get in so far with Jim but what he could get out and buy his bathtubs and things somewhere else if Jim didn't satisfy him that he could give him a better deal than anyone else.

Just to get an idea he said, "What kind of bathroom fixtures have you got in your own home, Jim?" Jim was ashamed of his bathroom, and he a plumber, but he couldn't get out of it. As I stood there in the corner watching all that was going on, I knew in a minute that Jim had lost a sale. The look on the visitor's face said as plain as day, "Jim doesn't believe in the goods, he sells, enough to use them himself. Maybe there is something wrong about them."

I went with Jim the other day on a repair job. The woman at the door said, "I have only four dollars to pay for that job, and I will not pay any more." Jim urged the men to work fast so he wouldn't lose money, and fixed it up in a way he thought would be all right. But in a couple of weeks the woman came back and complained that the job had to be done over again. I noticed that the next day Jim had a sign hanging in his shop which read, "We do quality work only—if you want cheap, slipshod work, get someone else to do it."

But a funny thing happened the other evening just as Jim was closing up. A fellow came in and said, "Where is that plumbing shop right near here? I have been going up and down this side of the street for five minutes trying to find it." "Why, this is a plumbing shop," said Jim, blushing. The next day I heard Jim ordering a new sign. Then he cleaned up the window and put in some nice fixtures. Jim is a comer, but just now he is awfully green, but he will learn. By the time he has chewed as many pipes as I have he will know s o m e t h i n g about the plumbing business.

I am encouraged, however, for I saw Jim today with his nose between the pages of an orange trimmed volume seeking ideas.

QUESTIONS & ANSWERS

This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering" and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftsman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

HOT WATER RADIATOR WHICH DOES NOT CIRCULATE PROPERLY

Editor, "Domestic Engineering": The enclosed sketch shows a hot water radiator connection that does not circulate properly under a low temperature. The riser A circulates rapidly and short circuits through the return

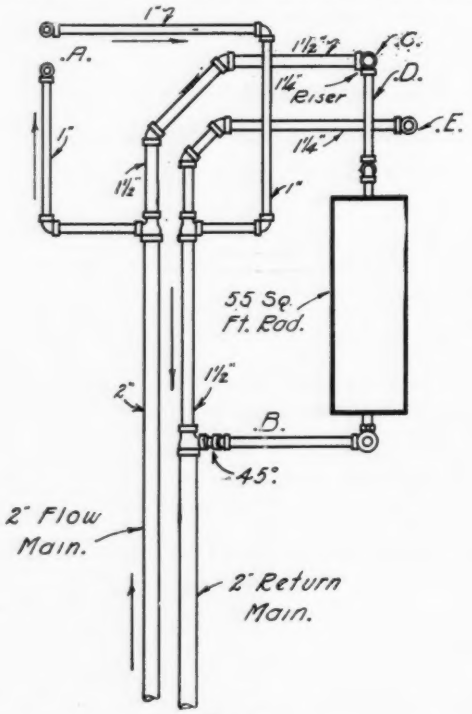


Fig. 1.

B, through radiator and up riser C, choking circulation at riser tee, and preventing radiator on second floor from heating.

At times when boiler temperature is, say 150 degrees, the pipe below the 1½x1¼x1¼ tee D is very hot, but branch to radiator and riser are just warm. E is cold. How do you account for this, and what would you suggest to relieve this condition? Constant Reader.

Your difficulty is due to the fact that the water in the return A from the second floor is so much hotter and has so much greater velocity than that in the return B from the first floor radiator that it blocks the circulation and causes a back flow through the first floor radiator. The return riser E remains cold due to the blocked circulation.

We call your attention to several points that are not good practice. You have reduced the size of the main at a connection to a riser to an upper floor (see connection to A). Your method of connection at D is poor. The method or style of connecting branch to main where the riser A is connected is not shown, but as all other connections are marked 45-degree or 90-degree we assume that the aforesaid connections are taken directly from the side of the main.

Fig. 1 illustrates the sketch submitted. It shows the various lettered connections as above described. In order to make plain the proper method of connecting the 55 sq. ft. radiator on the first floor and the risers to the second floor, marked A, C and E on Fig. 1, we submit a sketch of piping, Fig. 2, and have lettered the same to correspond with the lettering on correspondent's sketch.

The flow main is taken 2-inch to a point directly under the flow riser to the first floor radiator; here a 2x1¼-inch elbow is used and a 1¼-inch connection made to the top of the flow end of the radiator. The connection to the flow riser C to upper floor is taken from the 2-inch main, at a convenient point, with a 45-degree connection out of the bottom of the main. The same may be said of the connection to the flow riser A. The conditions and character of the connection to be used are identical with that to riser C.

The return risers A and E are connected to the 2-inch return main by a 45-degree connection into bottom of the pipe in the same manner as the flow connections are made. These points are indicated by X on Fig. 2.

Now let us follow the circulation and note what happens. The first hot water from the boiler always travels along the top of the main. There being only first floor connections made with 45-degree or 90-degree ells, the circulation to all first floor radiators is established before any of the hot water enters a branch supplying the second or upper floors. As a greater volume of water is heated by the boiler the whole circulation is heated and the supply enters the risers to upper floors, and the circulation throughout the entire apparatus is equalized or balanced and no risers are robbing the circulation from first floor radiators, nor is it short circuited through close connections.

We are of the opinion that the flow and return risers marked C and E can be reduced in size to 1-inch without interfering with the volume of heat from the second floor radiator. It might be well, also, to say that the exact point of connecting the branches to these risers to the mains (as shown by Fig. 2) can be changed to suit exist-

ing conditions. The main idea is to connect them properly from the main.

Never reduce the size of a main at a point where a branch supplies an upper floor riser, and never connect a riser from the top of a fitting or upright, as shown at D on Fig. 1. If the riser must be connected at this point

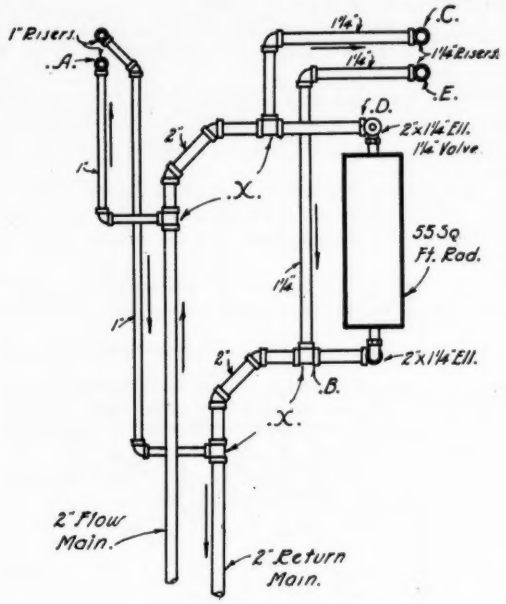


Fig. 2.

place a tee in the upright, reduce the size of the riser, and connect from the side opening of the tee.

The type of riser connection shown at X on Fig. 2 (45-degree out of the bottom) is of very great value in equalizing the circulation and for preventing short circuiting, and we commend it to correspondent and to all fitters, who will profit by its use.

INCREASES WATER-BACK POWER BY ADDING PIPE COIL IN FIRE-POT

Editor, "Domestic Engineering":—Fig. 1 is a sketch of a combination water front and coil in a coal range. The flow pipe from water-front is connected to the return

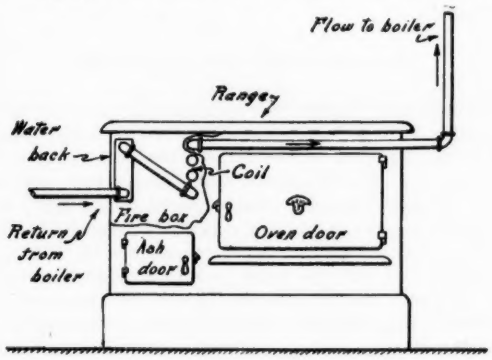


Fig. 1.

of coil, this cross pipe being outside of stove, in rear. What does the trade think of the coil addition?

Washington. W. J. B.

You want to know what the trade thinks of this. We think some of our readers will tell you in a forthcoming issue of "Domestic Engineering." In the meantime we will voice our opinions.

We think the coil part is wrong. The coil is composed of four pipes with, perhaps, return bends. It is set vertically against the fire brick opposite the water-back. No doubt it has been installed with the intention of helping the water-back to furnish more hot water. It is a booster for the water-back, so to speak.

The top outlet of the water-back is piped down on the angle to feed bottom of coil. The top of the coil is connected to deliver hot water to the range boiler, not shown. The bottom outlet of the water-back is, we believe, piped up to the bottom of the range boiler. That being the construction, it appears to us that the water-back is air-bound and the water-back and coil consequently will hammer. But there is a remedy which may be easily applied and which perhaps will make the combination operate very well. That means noiselessly and with a good circulation, furnishing an abundance of hot water to the range boiler.

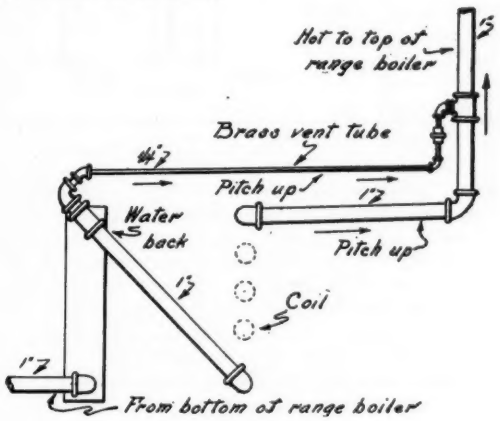


Fig. 2.

The remedy is to install a small vent tube, perhaps as shown in Fig. 2. This will allow the air to escape from the water-back and work its way up to the range boiler. Of course this tube must be small in diameter so that very little water can circulate up through it, thereby compelling the main flow to go through the coil.

We believe this is a sure remedy. However, we would like to hear from the trade also, as W. J. B. suggests.

CONNECTING TANK HEATER TO TWO VERTICAL RANGE BOILERS

Editor, "Domestic Engineering":—Please publish a sketch showing how to connect properly two 120-gallon vertical boilers for domestic hot water use, to a tank heater, so that we can draw water from both at one time. We do not have space for a large boiler, so please show us how to connect the circulators and also the hot supply away from the boiler.

Pennsylvania. J. C. L.

You do not state what kind of boiler you intend to install, whether tapped in the usual 30 and 40-gallon vertical boiler style, or with four side tappings.

We therefore show two plans. One is shown in Fig. 1, and it should give excellent results. If you can procure two boilers tapped that way, with 2-inch outlets, we are sure you will get entire satisfaction with this layout.

The sizes of the different pipes are given on the assumption that this is quite a good sized job, having, say, about six or more bathrooms or their equivalent.

The tank heater circulates only into boiler No. 1. All hot water also is drawn from boiler No. 1.

The cold supply, however, is fed into boiler No. 2.

These two boilers are connected together at both of their side outlets with 2-inch pipe. The unions should

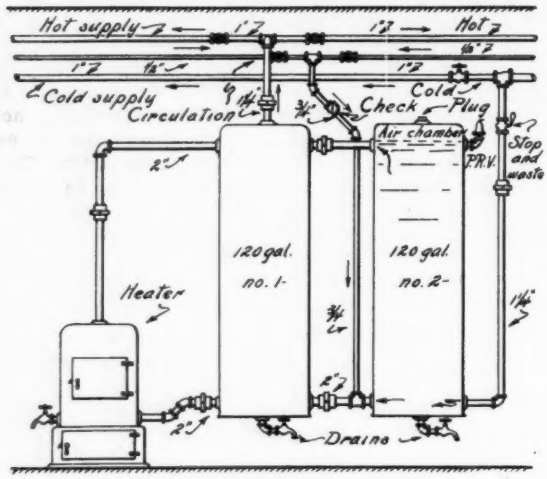


Fig. 1.

be brass, faced metal to metal unions. Otherwise the unequal expansion of the two boilers might work washers in unions so that they will leak. It would be advisable to have a little "play" on these cross connections, if the boilers are set close together. This is to take up the difference in expansion between the two boilers which naturally will occur during operation. Fig. 2 is a suggestion for piping these cross connections.

Note that there will be an air chamber at the top of the boiler No. 2, but this will not hurt anything. On the contrary, it should be a decided advantage in the way of cushioning any water hammer shocks that might otherwise give trouble.

The side cross connections are so large that there should be no difficulty in securing rapid equalization of both boilers; also an equal supply of cold water to both boilers even though the hot water is drawn only from the top of one boiler.

In case you cannot procure boilers tapped like Fig 1,

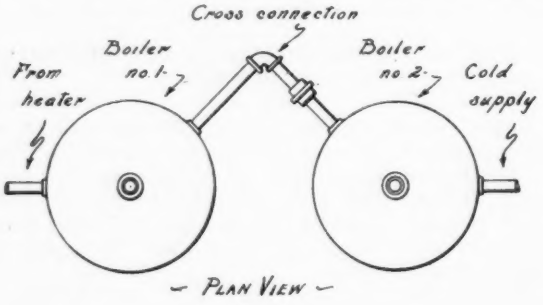


Fig. 2.

and have to use the regular tapped vertical boilers then we suggest hooking them up as in Fig. 3. In this arrangement, we advise that you order the boilers with 1½ or 2-inch tappings instead of the regular 1-inch. This will give much better circulation and assure superior results in every way.

If you adapt circulation to the fixtures it may be installed as shown. Half-inch pipe, particularly if of brass, is usually sufficiently large to circulate 100 ft. or more. At the boiler they join into ¾-inch, then drop and connect into the return to tank heater, through a light swing check valve installed on the angle as shown. The flapper of this check should be made of thin aluminum sheet, clipped with the shears to fit. The heavy cast brass flapper, if any, should be removed, as it is liable to make a hammering noise when it closes.

It may be necessary to adjust the cocks A and B, setting them so that the hot water will be drawn off from both boilers evenly.

There should also be a pressure relief valve set in the system somewhere near the heater. There must not be a valve of any kind between this pressure reducing valve and the heater.

Note the arrangement of the drain cocks. They are placed so as to draw off the tank heater and each tank as efficiently as possible as these are the places where mud may collect.

If you install the boilers on either of the methods shown we feel sure that you will obtain very good results.

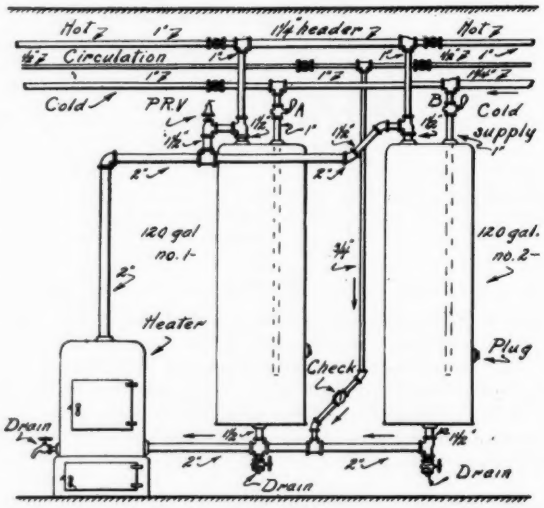


Fig. 3.

We do not see how you can experience any trouble anywhere with either method, providing you install the work right, and use the large connections noted. But if you use 1-inch boiler tappings in this case you may look for trouble.

DUTIES OWED STOCKHOLDERS

Directors and officers of a corporation owe stockholders the active duty of honesty and good faith in the transaction of the business of the corporation and in their dealings with it. If earnings are made from which dividends should be paid they will not be permitted to carry them into surplus so as to prevent a minority stockholder from sharing corporate gains or so as to depress his stock; and in the event of their so doing a court of equity at the suit of a minority stockholder will direct the payment of a dividend. Likewise, if a board allows unreasonable and excessive salaries so as to absorb earnings which should go in dividends or remain with the company as surplus, a court of equity at the suit of a minority stockholder will compel restoration. But a court will not lightly interfere with the judgment of the board, and the plaintiff in such an action, as commonly in other cases, has the burden of proving his case, including his claim that the salaries fixed are unreasonable and excessive.—Supreme Court of Minnesota, in Seitz v. Co., 189 Northwestern Reporter, 586.

STANDARD PIPING DETAILS

Branches From Exposed Riser, With Branches Above Floor, for a One-Pipe Steam Heating Job

THE drawing (Fig. 1), giving an end view, a side view, and a plan view, indicates how branch connections are made from an exposed riser to provide for the maximum of expansion, and permit proper steam supply and return of condensation for a one-pipe steam job, where connections are run above the floor. The side elevation is given, looking from the room toward the wall as indicated in the plan view. A tee is placed in the riser, as close to the floor as possible, with the side outlet looking away from the wall; a short nipple connects this to the side opening of another tee, as shown in the plan view; from the ends of this latter tee connections are made to supply radiators at both sides of the riser. The branch is taken back to the wall by means of 45-degree ells (or 90-degree elbows sometimes) and pitches upward, running back of the radiator to a corner valve. The branch should be one size larger than the tapping of the valve, reduction being made at the reducing elbow, shown in the end elevation and connecting same to the valve by a short nipple. In order to provide pitch for the branch the radiator is raised either by blocks or pedestals, or by means of high legs, as shown in the drawing, which latter method is best. The corner valve shown in the drawing is a lefthand corner radiator valve. It may be noted here that facing the radiator, looking toward the wall from the room, if the corner valve is at the left it is a lefthand corner valve, and if at the right it is a righthand corner valve, no matter which direction the branch comes from.

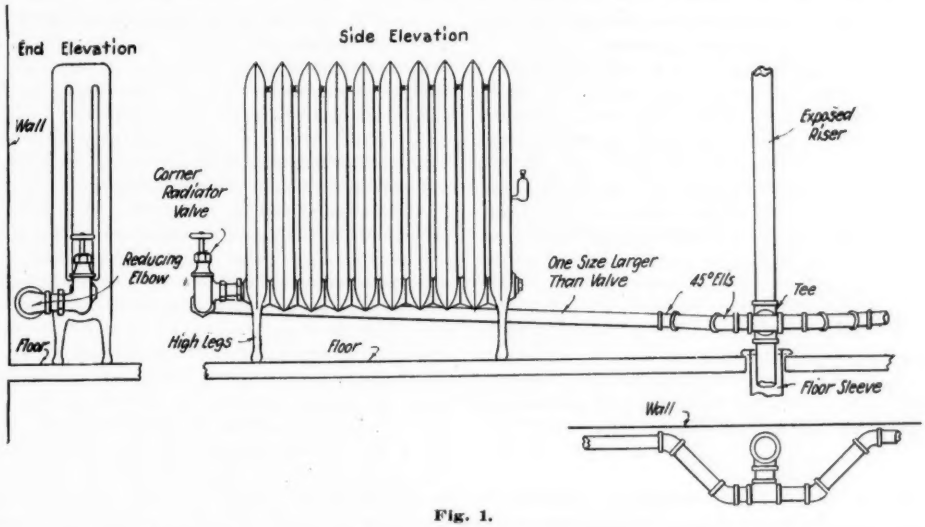


Fig. 1.

* * *

Using a Less Number of Steam Traps Than There Are Units Served

IT sometimes happens that an individual trap will have more capacity than the heating unit it serves. Where such is the case, and there are several units, the capacity may be balanced by connecting all the returns from the heating units into a header, and then connecting the traps to the header in the manner shown in plan and in elevation in Fig. 2. In this arrangement the air vents are also connected into the header, and the entire arrangement by-passed so that one or all of the traps may be cut out of service and the condensation discharge direct to the main return. In the installation shown the return connects to a vacuum pump. Where the job is a gravity return, the air is not piped to the return header, but discharges direct to the atmosphere by means of straight shank air vents.

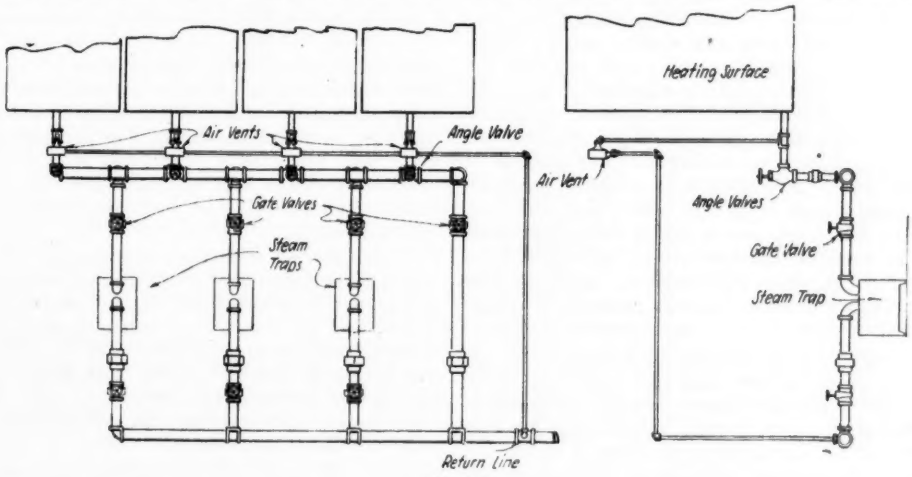


Fig. 2.

Legal Questionnaire

*Can a Partnership Be Held Liable for Endorsement of Check by One Partner in His Personal Business?—This Question Is Answered In a Most Thorough Manner**

By "The Judge"

Liability of Partnership for Endorsement of Check by One Partner in His Personal Business

Editor "Domestic Engineering":—I am in the plumbing business in partnership with one other master plumber. My partner, recently, in one of his own private transactions, received a check which was made payable to our firm instead of to him personally. He endorsed the firm name, then his own and gave the check in payment of one of his personal bills. The check was dishonored and now the person who cashed it for my partner insists that our firm pay the check and threatens an attachment of our firm account.

As a result of this situation my partner and I have had considerable discussion as to the rights between us to do certain things which will bind the firm, and we would like to know generally what our rights and liabilities as partners are. We have no written agreement of partnership and simply divide the profits and share in the losses.

R. W. E.

Answer:—Every ordinary partnership is presumed by law to be based on the mutual trust and confidence of each partner in the skill, knowledge and integrity of every other partner. It follows from this, that it is assumed in every such partnership that each member is an agent of the firm and of his other partners for the purposes of the business of the firm. It is not necessary that the agreement of partnership confer this agency on each partner in so many words. While this very general rule does not apply to all situations, it is the outgrowth of the years of business custom and experience, which requires that a person dealing with a firm of partners need not take the time or trouble to ascertain exactly what the powers of a partner may be in the usual run of business. If every salesman taking an order from a firm of partners was required to make inquiry as to power of the partner to make the contract, it is evident that business would be slowed up unnecessarily. On the other hand, take an instance where the transaction is out of the usual course of business, as where one partner gives a mortgage of all the firm's real estate, assets and goodwill. In such a case it is reasonable to require the person loaning the money to find out whether the one partner executing the mortgage had the authority to bind the other partners.

This rule applies, of course, only to transactions which are put through in the firm's name and in the course of the firm's business. Any person transacting business which is personal to one partner and which is not in the usual course of the ordinary business of the partnership, must take greater care in ascertaining whether any incident of the transaction is done with the authority, actual or implied, of the partnership, as a whole. In the case you mention about the check, as the cashing of the check was a personal matter with your partner, and presumably had no connection with the firm's business, the person, who loaned the money on the check or took it in payment of his claim, would be put on inquiry to find out whether the partnership intended, or could be held to have intended, to be bound by the endorsement of its name.

In the usual course of business of a firm, one partner is held to be the agent of the other partners with authority to sign and endorse negotiable paper, even without the knowledge or consent of the other partners. But where the note or check is signed by a partner not within the scope of the partnership business, it is not binding on the firm in the absence of express authority, or a course of dealings from which such authority may be presumed, or proof of the necessity of the transaction, or unless the act of the one partner is ratified by the other partners. As a sort of an exception to this general rule, we have the case where the bank account of the firm is kept in the name of one of the partners, and where all debts and accounts are paid by checks signed by him alone. In such a case the firm would be liable for all checks signed by the one partner.

In the case you cite, your firm would not be liable for the partner's endorsement of the check, unless it can be shown that your partner had actual authority to endorse the check, or that you have ratified the transaction as a partner, or that the money was applied to partnership business purposes with the knowledge and approbation of yourself, or unless the check was transferred to a bona fide purchaser for value without notice. Your firm might also be held liable for your partner's endorsement if it could be shown that similar situations had arisen before and that the firm had ratified your partner's act by paying the check, or, possibly, if it could be shown that in your accounting with your partner, you had credited and debited this check as an asset and liability of the firm and yourselves.

In the absence of definite partnership articles of agreement, your rights and liabilities, as between yourselves and also as between yourselves and third persons, depend largely on the nature and scope of the firm's business. This, in turn, depends chiefly on two considerations: First, the usages and customs which have grown up in connection with the class of partnerships to which the particular one belongs; and, secondly, the course of dealings of your own particular partnership.

While you may limit your partner's powers, even in the ordinary course of business dealings, as between yourselves, you cannot limit his authority as to third persons who have no knowledge of the limitations, as long as the transaction involved is within the implied authority of a partner in its relation to the general public and in its ordinary mode of doing business.

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*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the Very Nature of the Service, which is rendered without a personal interview.—Editor.

Implied authority is given each partner to bind the firm in the usual course of its business, but where the partners have adopted a firm name, a contract entered into in any other name by a partner, will not bind the partnership, except that the contract has been ratified by the firm or unless the difference between the firm name and the name used is so slight as to be immaterial. Also, where a contract is signed by the names of all the partners, instead of the firm name, it will be binding upon the firm when it is shown that it was given in a firm transaction and was intended as a firm obligation.

Each partner is empowered to bind the firm by contracts, except deed, bond or other instrument under seal of a like nature, provided the contract is firm business. Even where the contract is not strictly within the scope of the firm's business, it will be binding upon the firm if the benefits accrue to the firm.

A partner may usually execute a lease in the name of the firm, as lessee, but where the firm owns the real estate and gives a lease of it, in the usual case it is not binding upon the firm without evidence of previous authority or subsequent ratification.

One partner may bind the firm by contracts of employment executed in the firm's business; but where the person employed knows that the partner hiring him is bound by the articles to pay for his services personally, the firm would not be bound.

Of course, a partner can bind his firm by making purchases and sales within the scope of the firm's business, excepting always the sales of the firm's real estate, and binds his firm by his warranties in the sales of personal property. A partner can make assignments, give releases, compromise claims and borrow money in the firm name; provided, always, that the transaction involved is in the usual business of the firm or of like firms.

It is well to remember that a partner may do something which obligates the firm on its face, but for which he has no authority, implied or actual, and still make the firm liable if this act is ratified or if the firm accepts the benefit of it. I use the word "accepts" as distinguished from "receives" for the reason that a benefit might be received unknowingly by a firm, and later, when known, might be repudiated and the firm would not be bound.

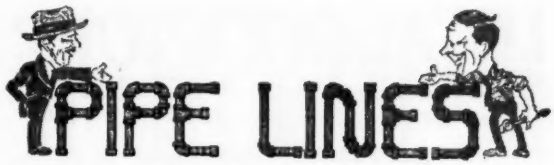
A partnership, at the best, is founded upon the frequently fragile base of mutual trust and confidence. Insanity, lack of judgment and poor business ability often wreck a firm. If you hold yourself out as partners, the general rule of law is that you must take the consequences of a partner's intentional or unintentional misdeeds, rather than shift the burden to the shoulders of an outsider.

In your own case, which you ask about, there would not seem to be any question but that your firm is not liable as an endorser of the check, in the absence of circumstances which would give the taker of it a right to believe that it was given in the course of the firm's business.

DEPOSITS FOR A SPECIAL PURPOSE

Where money is deposited for a special purpose, as where it is deposited for the stated purpose of meeting certain checks to be thereafter drawn against such deposit, the deposit does not become a general one, but the bank, upon accepting the deposit, becomes bound by the conditions imposed, and, if it fails to apply the money at all, or misapplies it, it can be recovered as a trust deposit.—Supreme Court of North Dakota, in Morton v. Woolery et al., 189 Northwestern Reporter, 232.

Did you read "The Story of the Bath" in last week's issue?



Have You Washed those Front Windows?

SUPPLY AND DEMAND

When a statesman or a scholar
Or an expert with the dollar,
Growing weary of this rather rapid pace,
Gives due notice that he's quitting,
And to private life is flitting,
There is always someone near to take his place.

Men of fame and of ambition
Pass from power and position,
Our hearts feel scarce a momentary throb;
But our grief we cannot smother—
For it's hard to get another—
When a darn good workin' plumber leaves the job.

R. D. A., Washington, D. C.

HE WAS SO IGNORANT

..he thought plumbers made plum pudding.

G. P., Anderson, Ind.

THE HEIGHT OF SPEED

The argument had to do with "speed." Boast followed boast, lie followed lie. At last one of the two darkies sought to end the question.

"Brothah," said he impressively, 'yo' all may be fast but Ah's de fastedest, Ah is. Dar's a light in mah bedroom which am fohty foot frum whar Ah sleeps. At ebenin' Ah comes home, turns out de light—quick—like dat—an' Ah'm in bed foh de room am dahk."

R. C., Philly.

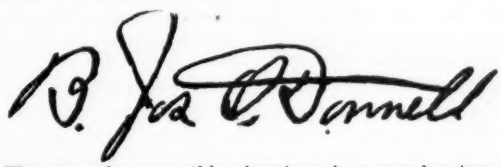
WHO IS BOMBO?

We quote from a recent inquiry. ". . . . I am wondering . . . . you picked it up in one of 'Ringling's' cages or punched a prize board for a dime and won it. I hope it's not inherited . . . . . for the sake of the Plumbers of the U. S. A. tell us where you found it . . . . . ." Signed, G. M. D., New York.

What is the mystery surrounding "Bombo"? Do you know? Perhaps you can help us?

BOMBO READS A SIGNATURE

B. Jos. O'Donnell, Eastern Representative of The National Trade Extension Bureau:



The one who pens this signature is a regular two-fisted man, and you may be sure that he can read, write and speak English. He is kindly, humorous, and no matter how old he may grow he will always be young.

BOMBO.

A well-known prima donna sings while she takes her bath. We don't know what song she sings, but it isn't "How Dry I am."

L. T. R., Hollywood, Cal.

SEND IN A LIMRICK ABOUT YOUR TOWN!

Ole Ander: Us plumbers from Lynn,
Think the way that you treat us a sin;
On us take some pity,
Take some other city—
F'rinstance, Minneapolis, Minn.

S. L. B., Lynn, Mass.

I once read of a man whose family treated him so meanly that he had to die in order to get into the parlor.

You can't be a dead one and get into Pipe-Lines. The livelier you are, the quicker will you be welcomed into the parlor. What's say?

OLE ANDER.

LIABILITY OF SURETY FOR FAILURE OF HEATING PLANT

THE Commission of Appeals of Texas, Section A, says that an owner of a building entered into a contract with a firm, in which contract the firm agreed to install a complete heating system in his house according to specifications contained therein. Said contract provided that the owner should pay the contractors the sum of $840 upon completion and test of said system. It also contained the following:

"Second. Contractor guarantees said system to raise temperature to 70 degrees F. in each room of first and second floors of said building in zero weather, and to supply two gallons of water per minute for periods necessary in household use, for a period of one year. Failing to do so, contractor shall remove all portions and parts of system without cost to owner, and repay to owner all money paid on account of this contract."

The firm as principals, with a man as surety, executed a bond to the owner of the building, bearing even date with said contract in the penal sum of $840, conditional that, if said principals should perform and fulfill all the obligations imposed on them by said contract, a copy of which was annexed, and made a part thereof, such obligation should be void, otherwise remain in full force and effect.

The heating plant was put in during the summer, and on September 2 it was subjected to a theoretical test which seemed to have satisfied the owner of the building, who immediately paid the major part of the agreed purchase price, and shortly thereafter the remainder. There was no complaint that the contractors did not install the identical system called for by the specifications in said contract, nor that any defective material, equipment, or workmanship was used. The system installed failed to furnish a temperature of 70 degrees in the rooms of said building as guaranteed, and failed to supply two gallons of hot water per minute. There was also some complaint that the hot water furnished was discolored and not fit for household use.

The record in the case showed that as early as December the owner of the building notified the contractors that the heating system installed did not fulfill the guaranty; that they attempted to make it do so and failed; that he notified them two or more times to remove it and return the money paid therefor; that he finally demanded that they make it work, or, as he expressed it, "complete the job," that after waiting in all more than six months without any substantial relief he had the system remodelled and added to in an attempt to make it comply with the guaranty. The Commission of Appeals does not think that his using the system installed by the contractors as a basis in constructing and installing an adequate heating system for his house can be held to be an acceptance of such system as complying with such contract, or the waiver of his guaranty. Any such holding would, under the circumstances, be inequitable and unjust.

The owner of the building was justified in concluding that the contractors had abandoned the contract. The defective system furnished by them was in place in his home. He could have had it removed and would have been within his rights. He chose, however, to let it remain and to use it as a basis for constructing an adequate heating plant. Such action on his part made him liable for the reasonable value of the same at the time as an offset to his demand for return of the purchase price.

The surety, as such was entitled to stand on the very terms of his contract, and his liability cannot be extended by implication or otherwise beyond such terms. Mere knowledge on his part that his principals had failed to remove the heating system and return the purchase price would not defeat such right.

The conclusion is that on the case made by the record the measure of the recovery of the owner of the building should be the purchase paid by him, with legal interest from the date of payment, less a credit equal to the reasonable cash value of the system installed by the contractors at the time he used and appropriated the same.

The judgment recommended by the report of the Commission of Appeals was adopted and entered as the judgment of the Supreme Court of Texas.—242 Southwestern Reporter, 459.

* * *

AUTHORITY OF A TRAVELING SALESMAN

Unless expressly authorized to make an absolute contract of sale, a traveling salesman has authority only to solicit orders and transmit them to his principal for approval, and the burden of proving that the salesman was authorized to make such a contract is upon the person asserting it and seeking to avail himself of it—Supreme Court of Mississippi, in Planters' Lumber Co. v. Sibley, 93 Southern Reporter, 440.

BLACKBOARD EPIGRAMS

THE other day this question was asked: "How many dealers are using the blackboard epigrams?" Nobody knows. "Why not?" was the next question. Because all the dealers who are writing epigrams on blackboards out in front of their stores don't write letters telling what they're doing.

And these two questions suggested another question: Why don't the dealers write? It would be a good thing to have a list of all the epigram users. And it would be a good thing to know what they think of the blackboard idea, also the results.

Write right soon.

Here are another seven—lucky number—one to be writ with chalk on a blackboard each morning of a week.

The only thing with a kick that is still popular is football.

* * *

The most careful woman loses her name on her wedding day.

* * *

Look up, but keep one eye on the sidewalk.

* * *

Knock wood, but don't knock anything else.

* * *

Charity begins at home, and sometimes it stays there.

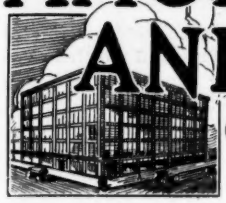
* * *

A pessimist is a man who doesn't take a daily bath.

* * *

The way to help yourself is to help yourself.

AMONG THE WHOLESALERS AND MANUFACTURERS



INCREASING CAPITAL STOCK

Raub Supply Co., Lancaster, Pa., jobber of plumbing, steam, gasfitting, mill and machinists' supplies, has increased its capital stock to $300,000 from $100,000 and has opened a branch office at Harrisburg, Pa.

The Scovill Mfg. Co., Waterbury, Conn., manufacturers of brass and bronze products, has declared a stock dividend of 200 per cent. This action followed the recent decision of the stockholders to increase the capital stock of the company from $10,000,000 to $15,000,000.

CAPITOL PLUMBING SUPPLY CO. CHANGED TO CAPITOL SUPPLY COMPANY

On January 1st the Capitol Plumbing Supply Co., of 233-35 North 10th Street, Lincoln Nebraska, changed its name to Capitol Supply Company, and will soon move into its new building at 9th and R Streets in that city.

PENNSYLVANIA RANGE BOILER CO. TO INCREASE OUTPUT

The Pennsylvania Range Boiler Co., of Philadelphia, is making extensive changes in its plant and is adding machinery and equipment which will enable the company to turn out five hundred boilers per day. The present output is two hundred per day.

THE E. SMOLKA PLUMBING SUPPLY CO. INCREASES CAPITALIZATION

The E. Smolka Plumbing Supply Co., of 231-233 East Thirty-third Street, New York City, has increased its capitalization from $15,000 to $100,000. This concern is also building a new warehouse.

WESTERN TRADE GOLF ASSOCIATION TO HOLD ANNUAL MEETING

The annual winter meeting of the Western Trade Golf Association, which is also the occasion for the election of officers for the ensuing year, will be held in the Bismarck Hotel, Chicago, on Saturday, February 3d, at 12:30 p. m.

WILL SOON BE IN ITS NEW BUILDING

United Plumbers' Supply Co., Inc., New York, jobbers of plumbing, heating and mill supplies, will soon be completely installed in its spacious new business home on Exterior Street, between 146th and 149th Streets. The company was organized in 1909 and has been located at 181 East 108th Street, with warehouse at 184 East 109th Street. The new building is a two-story concrete structure of factory design. A railroad siding helps solve the problem of freight shipments. The company expects to retain its present quarters as a branch.

THIRD LARGEST STEEL PRODUCING CONCERN IN AMERICA RESULTS FROM ABSORPTION OF STEEL & TUBE CO. OF AMERICA BY YOUNGSTOWN SHEET & TUBE CO.

Two Companies Recently Taken Over Gives Youngstown Sheet & Tube Co. Foothold in Chicago District

The announcement was made last Tuesday by the Youngstown Sheet & Tube Co., of Youngstown, O., that it has taken over the Chicago, Indiana Harbor, Ind., and the Zanesville, O., blast furnaces, steel works, plate and tube mills of the Steel and Tube Co. of America.

A statement confirming the above was given out at Youngstown, O., by President James A. Campbell of the Youngstown Sheet & Tube Co., in which he says: "The Youngstown Sheet & Tube Co. has reached an agreement with the Steel & Tube Co. of America for the purchase of its assets, and the attorney general of the United States and the Federal Trade Commission have been advised of this agreement, and also advised that full details of the terms will be submitted to them as soon as they can be prepared. Meetings of the stockholders and directors of the two companies will be called as soon as possible for the purpose of ratifying the agreement reached."

This announcement follows days of negotiations between officials of both companies, some of which were directors and stockholders in both companies.

It also follows closely upon the acquisition on Dec. 20, 1922, of the extensive properties of the Brier Hill Steel Co. by the Youngstown Sheet & Tube Co.

The purchase of the Chicago concern puts the Youngstown Sheet & Tube Co. up among the very large and important iron and steel works of the United States, indeed in the world. It makes it the third largest in the United States, the United States Steel Corporation being first and the enlarged Bethlehem Steel Corporation second.

Before acquiring these two companies the Youngstown Sheet & Tube Co. had a steel ingot annual capacity of 1,500,000 tons, six blast furnaces, 12 open hearth furnaces, 15 sheet mills and a bessemer plant. Through its Brier Hill purchase it acquired steel ingot capacity of 700,000 tons, three blast furnaces and 12 open hearths, two modern plate mills and 28 sheet mills, making a total of 43 sheet mills with its own 15. Now by the purchase of the Steel & Tube Co. of America it obtains added ingot capacity of 960,000 tons, eight blast furnaces, four open hearths, a bessemer plant at Indiana Harbor, and tube mills at Evanston, Ill., and Zanesville, O., at one time the properties of the Mark Mfg. Co.

The Youngstown company also adds to its already large Lake Superior iron ore holdings important properties possessed by the Steel & Tube Co., as in the case of the Brier Hill purchase. It also gains very valuable coal properties in West Virginia with the Steel & Tube purchase, also as in the case of the western Pennsylvania coal properties of the Brier Hill Company.

Probably, however, as highly important as possession of

the physical properties of the two concerns taken over, is the geographical position attained by the latest purchase. It places the Youngstown company right in the favored lake front district, where production costs are close to minimum. It also gives it a foothold in the Chicago district.

"DOMESTIC ENGINEERING" ESTABLISHES PHILADELPHIA OFFICE

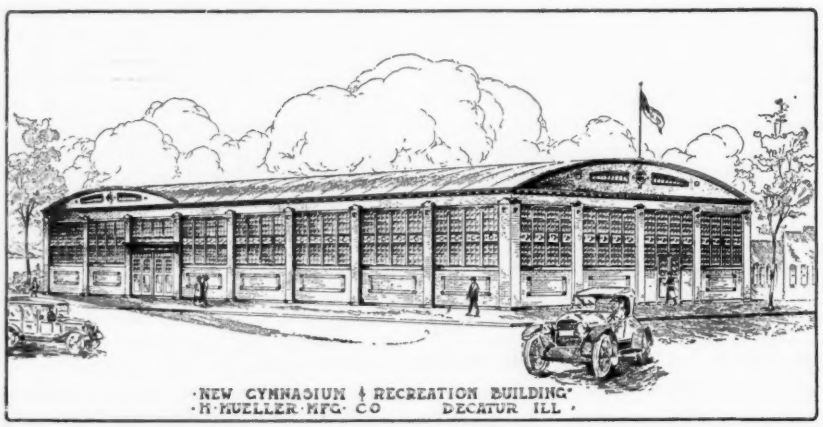
"Domestic Engineering" will, in the future, have an office and representative in Philadelphia, at 5622 Girard Avenue. R. P. Wettstein, formerly of the New York office of "Domestic Engineering," will be in charge. He has extended a cordial invitation to all business acquaintances and friends to call upon him.

M. L. KLINE CO. HAS NOVEL REFERENCE LIST

The M. L. Kline Co., of Portland, Ore., is distributing to its trade in the Pacific Northwest a handy reference on staple lists. The list is drawn up in the form of a chart —17 x 26 inches—and includes malleable, cast iron, soil pipe and drainage fittings, brass valves, plumbers' brass goods and other kindred lines. Such a chart affords a great saving of time in checking or listing invoices covering these goods.

H. MUELLER MFG. CO. TO HAVE NEW RECREATION BUILDING

Work is to be started soon on the new recreation building planned by H. Mueller Mfg. Co., of Decatur, Ill., for the benefit of its employes. This two-story structure will occupy a space 60 by 90 ft., with a balcony having a seating capacity of 250 running along one side. It will have a fully equipped gymnasium, two bowling alleys, courts for basketball, volley ball and handball, as well as a large dining room. At one end of the dining room will be a stage for entertainments, motion pictures, etc. There will be a men's rest room in the basement, which will be equipped with showers, lockers, washroom and toilets. A rest room for women is provided for on the second floor balcony.



ENLARGING AMERICAN CLUB AT KOHLER

An addition which will double its capacity is being built to the American Club at Kohler, Wis. This new addition is made necessary because of the increases which are being made in the personnel of the Kohler Co. organization. The new portion will probably be ready in the spring.

The American Club was opened in the summer of 1918. It furnishes pleasant and wholesome living accommodations for some 150 single men of the Kohler Co. In addition, it is equipped with dining room facilities, and about 600 meals are served each noon to both the regular guests and other members of the Kohler organization. The club is equipped with bowling alleys, card and billiard rooms, and is the center of many activities.

The American Club is of Gothic architecture, built of light brown brick with white trimmings and mottled slate roof and harmonizes well with the interesting development which is taking place in Kohler village, which has already won a reputation as a model industrial community.

The new addition will be in the form of a wing. It is 237 ft. long, 32 ft. wide and three stories in height. There will be living rooms on each floor and a part of the basement will be given over to lounging, card, and billiard rooms for the convenience and comfort of the men during their leisure hours.

BUREAU OF STANDARDS ON CORROSION OF UNDERGROUND PIPES AND CONDUITS

The last year has been notable because of the amount of scientific attention given to the subject of elimination of industrial wastes, according to the annual report of the director of the Bureau of Standards of the Department of Commerce, for the fiscal year ended June 30, 1922. The Bureau of Standards acts as a clearing house for technical and scientific data necessary to the solution of many industrial problems, and has carried on a great number of important investigations on this subject.

Large sums are lost each year through the corrosion of underground pipes and conduits, due to electrolytic action and also to conditions of the soil. A program of study of this subject has been mapped out, and, if possible, means will be suggested for preventing this waste. With a view to determining the results of different soil conditions, pieces of pipe have been buried in different parts of the country, and the effects of the soil on the metal will be studied.

The Bureau is also endeavoring to formulate safe and economical standards in the field of building construction. More material than is necessary is often used for a wall or floor slab, because of lack of complete information concerning the stress which such material can safely bear, its ability to resist fire, etc. An investigation as to the strength of walls and floors, resistance of buildings to fire, and the construction of cement and concrete, is also being carried on, and valuable statistics covering the cost of building materials have been compiled.

BUSCHMANN SALES FORCE VISITS MANUFACTURERS' PLANTS

The entire sales force of August Buschmann & Sons, Inc., of Indianapolis, Ind., was taken to Cincinnati, Ohio, this week to visit the plants of the John Douglas Company and the Eagle-Picher Lead Company. This was the

beginning of a program of the Buschmann Company to take its salesmen to the manufacturing plants of the various sources of supply, so that they may get a more intimate and better understanding of the products that the firm handles. The following were in the party: A. W. Buschmann, O. L. Buschmann, Robt. P. Wurster, Ernesto Ferrer, E. H. Kingston, Frank Bryan, Theodore Phillips, Claude Locke, Don Clapp, Rufus Mahrling, Wm. Moeschell and Louis Gutknecht.

ARCHITECTS DRAW LOTS FOR JOHNS-MANVILLE, INC., BUILDING

Firms that find themselves in a quandary in regard to placing a contract with one of several architect friends might take a tip from a novel scheme adopted by Johns-Manville, Inc., in letting the drawing of the plans for a new sixteen- or eighteen-story building to be built at Madison and Fifty-first Street in New York City. The company was reluctant to designate any special architect, as it has had large business deals with many of them, and it was decided to select the winner by lot. Accordingly, a list of twenty-three competent firms was made up and a representative of each invited to a luncheon. Twenty-two blanks and a slip of paper bearing the words, "You win," were placed in a hat, and the winning slip was drawn by a representative of Ludlow & Peabody.

Howard Evans has just been elected vice-president of George B. Limbert & Co., jobbers and fabricators of pipe and fittings in Chicago. He was formerly associated with Whitney & Ford, Chicago, and has for many years been connected with the supply trade.

B. O. Tilden, president of the B. O. T. Manufacturing Co., of Trenton, N. J., was in Chicago this week on a business trip. He was very enthusiastic about the outlook for business in the new year in the East.

V. E. Sumwalt, of the Abram Cox Stove Company, Philadelphia, Pa., has been appointed manager of this company's Baltimore office, located in the Builders' Exchange, 15 East Fayette Street, in that city. Mr. Sumwalt has for some time managed this company's Newark, N. J., office.

Joseph Born, manager of the Indianapolis branch office of the Kohler Co., and **Harold Held,** manager of the Minneapolis branch office, visited friends and relatives at Sheboygan and Kohler, Wis., during the holidays.

R. J. Welsh, southern representative for the Sloan Valve Company, with headquarters at Atlanta, Ga., was a visitor during the holiday season at the home office and factory in Chicago.

A. H. Chrisman, vice-president of the General Boilers Company, Waukegan, Ill., is now located at the eastern district sales office, 101 Park Ave., New York City.

A. W. and O. L. Buschmann, of August Bushmann & Sons, of Indianapolis, Ind., are at present on a business trip on which they will visit Pittsburgh, Youngstown, Lorain, Cleveland and Chicago.

The following members of the force of the A. Y. McDonald Mfg. Co., of Dubuque, Ia., were in Chicago several days this week: **I. G. Whitney** and **Robert Johnston,** of Duluth, Minn.; **B. W. Tangeman,** manager of the Minneapolis branch, and **Ed. J. Connor,** manager Omaha branch.

H. A. Cross, Chicago representative of the U. S. Sanitary Mfg. Co., of Pittsburgh, Pa., left the first part of the week for Pittsburgh to attend the annual salesmen's meeting of this company at its general offices.

E. A. Maginnis, of the Standard Sanitary Mfg. Co., Chicago, left last Tuesday for Lincoln, Neb., and other western points. While on his trip, Mr. Maginnis will address salesmen's meetings of the Dempster Mill Mfg. Co. at Lincoln and will also speak at Beatrice, Neb.

Wm. Devine, Chicago representative of the Thos. Maddock's Sons Co., left January 5 for Trenton, N. J., to attend the salesmen's meeting at the home office.

Trade Literature

Here are mentioned each week the newest catalogues, booklets and folders that are of value to the trade. Copies may be had by writing the different companies. Or write "Domestic Engineering" on your letter head, listing the items you are interested in, and we will ask manufacturers to mail copies to you.

Necked Like a Swan

Thomas Savill's Sons, of Philadelphia, tell in a booklet of twenty pages, with twenty-six illustrations, of their swan neck faucet. The special feature of these faucets is the long outlet of the nozzle, which delivers a straight, smooth, flowing stream at all times, without splashing.

Plumbers' Woodwork

Catalogue No. 21 of the Becker Mfg. Co., Marietta, Ohio, illustrates and describes the seats, hinges, closet tanks, ball cocks, flush valves and drain boards manufactured by that company. Instructions for ordering and specifications are included.

Boilers in Industrial Buildings

The latest bulletin of the Utica Heater Company, Utica, New York, shows a number of factories, garages and office buildings throughout the States, as well as one in Japan, where that company's boilers are installed. The boilers are manufactured in thirty-one sizes, and, while designed especially for soft coal, hard coal or coke, fuel oil can be used.

Supply and Waste Fittings

The Frost Manufacturing Co., Kenosha, Wis., presents in an eight-page booklet its brass concealed waste and supply fixtures for built-in tubs. Several pages of roughing-in dimensions are given, as well as a page listing special features of these fixtures. The fixtures are fully assembled when shipped, and are adjustable, where necessary, to fit any style of built-in tub.

Producing Condenser Tubes

The Chase Metal Works, Division of Chase Companies, Inc., Waterbury, Conn., tell most interestingly of the manufacture and specifications of their condenser tubes in a thirty-two page booklet. The reader is introduced by means of pictures to the plant and its different departments. He is then told of the mixtures used in compositions, the different methods of producing the tube, the mixing of the alloy, the making of the core, the cutting and inspecting, etc., down to the physical tests. The gist of the booklet is given in a page of summary and recommendations.

Pumps for City, Town and Farm

Catalog No. 102 of the Monarch Engineering Company, Dayton, Ohio, presents eight styles of its double acting, shallow well type pumps and accessories. Two pages of general specifications and two installation charts and installation information are included. A sectional view points out the distinctive features of its pumps of this type.

Universal Unions

M. A. Connor, Lockport, N. Y., explains his universal unions in a folder which has just been issued. By means

of these unions the two halves of the flange are fitted to both pipe ends and set together at the angle to give the desired "throw," and then made up in the usual manner. This does away with the difficulty of laying pipe at odd angles.

Bathroom Accessories

The E. C. Smith Mfg. Co., of Chicago, has issued a twenty-five page Special Catalogue F—Bathroom Accessories—dealing particularly with showers and sprays, but listing many other items, such as mirrors, tub seats, tumbler holders, towel racks, etc. Any of the accessories which are illustrated and described in this catalogue can be furnished with white finish.

Introducing the Pneumelectric Concrete Drill

The Pneumelectric Corporation, Syracuse, N. Y., is sending out a booklet introducing its pneumelectric portable concrete drill. This device, which is especially useful to the steam fitter and plumber, can, they state, drill or chip concrete, brick or stone in one-fifteenth of the time required to do the same work by hand. It can also be used easily in drilling "up-holes" or in cramped quarters. The machine is of the hammer drill type and combines electricity with compressed air. The electricity is the actuating force and the compressed air is the blow producing force. The high rate of speed at which the drill travels enables it to deliver one thousand blows per minute. Although of rugged construction, the machine is compact and light and can be operated from any lamp socket. A sectional drawing and diagram makes clear an explanation of the operative principles of the Pneumelectric.

Convention Dates

January 16 and 17, 1923.—Annual convention of the Wisconsin State Master Plumbers' Association, in Beaumont Hotel, Green Bay, Wis.

January 22 and 23, 1923.—National Slate Association meeting, at Commodore Hotel, New York.

January 23, 24 and 25, 1923.—Annual convention of Iowa State Master Plumbers' Association, at Sioux City, Ia.

January 23, 24, 25 and 26, 1923.—Twenty-ninth annual meeting of the American Society of Heating and Ventilating Engineers, at Washington, D. C.

January 29, 30 and 31, 1923.—Thirty-first annual convention of the Illinois State Master Plumbers' Association, at Decatur, Ill.

February 6, 7 and 8, 1923.—Annual convention of the Ohio State Master Plumbers' Association, at Cincinnati, Ohio—Headquarters and meeting place—New Gibson Hotel.

February 14, 1923.—Winter meeting of the Eastern Supply Association, at Hotel Astor, New York.

February 21 and 22, 1923.—Winter meeting of the Central Supply Association, at Drake Hotel, Chicago.

February 26, 27 and 28, 1923—Annual convention of the Missouri State Master Plumbers' Association, at the Hotel Statler, St. Louis, Mo.

March 12, 13 and 14, 1923.—Annual convention of Indiana Society of Sanitary Engineers, at Evansville.

March 21, 22 and 23, 1923.—Meeting of the National Association of Brass Manufacturers, at Chicago.

March 29 and 30, 1923.—Annual convention of the Michigan State Master Plumbers' Association, at Saginaw. The headquarters will be at Hotel Bancroft and the meetings will be held in the Auditorium.

April 2 and 3, 1923.—Annual convention of the Tennessee Association of Master Plumbers, at Chattanooga, Tenn.

April 18 and 19, 1923.—Annual meeting of the National Metal Trades Association, Hotel Astor, New York.

May 8 and 9, 1923.—Annual convention of the Pennsylvania State Association of Master Plumbers, at Johnstown, Pa.

May 14, 15 and 16, 1923.—The annual meeting of the National Pipe and Supply Association, in Cincinnati, Ohio.

May 23-26, 1923.—Annual Convention of the National Heating and Piping Contractors' Association, at Chicago.

June 25, 1923.—Annual convention of the New Jersey State Master Plumbers' Association, at Atlantic City.

June 26, 27 and 28, 1923.—Forty-first annual convention of the National Association of Master Plumbers, at Atlantic City, N. J.

Twenty Years Ago in "Domestic Engineering"

Saturday, January 10, 1903

Ninth Annual Wisconsin Association Meet.—The Wisconsin State Master Plumbers' Association met in Milwaukee on the 6th for its ninth annual convention. Frank J. Smith, of Milwaukee, was elected president; Fred Green, of Janesville, vice-president; George Kraft, of Madison, treasurer; and George Reeke, of Green Bay, and S. V. Hanley, of Milwaukee, were chosen delegates to the national convention.

Chicago Firm Moves.—The Street & Kent Mfg. Co., of Chicago, has moved into its new three-story building at 43 Fulton Street.

Buffalo Meter Co. Has New Building.—The new building of the Buffalo Meter Co., of Buffalo, New York, is nearing completion and will soon be ready for occupancy. It is located at West Genesee Street and the Terrace.

New Housing for Bridgman Bros.—Bridgman Bros., of Philadelphia, are erecting a large warehouse and pipe cutting plant at 1424 Washington Avenue.

Celebrate Thirtieth Anniversary.—On January 8th the Master Plumbers' Association of the District of Columbia celebrated the thirtieth anniversary of its organization with a banquet.

Large Sewer Improvements.—During the year just closed the city of Nashville, Tenn., spent $200,000 in street and sewer improvements.

DAMAGES RECOVERABLE FOR PREMATURE DISSOLUTION OF PARTNERSHIP

Where prospective profits of a partnership are speculative and conjectural, they do not afford a proper basis for measuring damages sustained by one partner because of a wrongful breach of the partnership contract by the other partner whereby the partnership is prematurely dissolved.

Where one or two partners by his wrongful act has caused the premature dissolution of the partnership, and the other partner has devoted his time to the firm business, but is unable to show with reasonable certainty what the prospective profits would have been, he may, in lieu of and as a substitute for prospective profits, recover as damages the reasonable value of his time, less any sum or profit he has received from the business prior to the dissolution of the partnership.—Supreme Court of Nebraska, in Cox v. Bell et ux, 189 Northwestern Reporter, 369.

THE METAL MARKET AND TRADE REPORTS

STEEL AND IRON

The steel and iron industry started the year under favorable circumstances. Steel properties are operating at an average rate of 80 per cent, and in some of the important finished lines new business is coming forward in a propitious way. Considerably more sheet tonnage is moving to the mills than during the latter part of December, and production in this branch of the industry is expected to show a good average for the quarter.

Sales of black sheets at 3.50 cents base Pittsburgh are reported by an interest at Youngstown that has not formally announced an advance of $3 a ton above the corporation level. Business last week in black sheets was exceptionally heavy with some makers, while others are well committed, but galvanized producers are little interested in tonnage at the nominal level of 4.35 cents base.

Prices Tending Upward

An early resumption in steel and iron buying marked the first week of the year in the Pittsburgh market, with an increasing tendency upward in prices for most finished lines and affecting pig iron also to some extent. The highest pressure appears to be in pipe, wire and sheet products. In the pipe trade the scarcity of small pipe, and its demand continuing far into the winter months for merchant quality, has been rendered even more acute in its strained condition by the appearance of several important pipe line inquiries, which are promising to crowd the pipe mills still further.

Scarcity of labor has been a factor in the pipe production as well as car shortage, and production has at no time reached full capacity. The action of Wheeling interests in advancing prices by lowering discounts last week on standard pipe has been regarded as an early action on what appears to be an inevitable result of the present situation.

The sheet market has taken on new vigor and strength in buying and, with the generally well filled order books among the independents and sheet bars tending to advance above the $36.50 base for second quarter, the advance in sheets to the 3.50 cents base appears to be a strong probability, especially as several of the mills are quoting the higher base on new tonnage.

The blue annealed sheet trade is very firm and sales at 2.75 cents or $5 a ton above the nominal market were made last week. Galvanized sheets are quite scarce and shipments are becoming somewhat further deferred.

Tin Plate

Tin plate has become a strong factor and, while prices are conservative and $4.75 remains the base box price, the increasing demand and higher costs are likely to brjng about the long expected change to at least $5 a base box.

The Wire Market

The wire market is regarded as rather oversold for first quarter, few producers being able to accept the additional business being offered for that period. This is especially true for plain wire, which is now difficult to obtain even at the advance to the 2.55 cents base.

Nails are not quite so scarce and the latter part of the quarter appears to show some minor capacity available for the trade. This, however, is firm at $2.80 per base keg. Some inquiry for wire rods indicates the market tends toward $5.

Pig Iron

Fresh pig iron inquiry is slight, but this does not concern iron makers, as most of them have their first quarter output already sold up, and some of them are oversold and must carry deliveries over to second quarter. There is an especial shortage of high silicon iron, inasmuch as this grade requires more coke, and coke prices are high. Recent good sized inquiries for high silicon iron have come from large interests in New England and New Jersey.

That the new high base price of $28 per ton eastern Pennsylvania is being observed, together with $1 silicon differential, is indicated by a recent sale of 100 tons of 2X made at $29 per ton furnace. On all ordinary tonnages the price holds firm at $28 base, but large tonnage inquiries would probably bring out offers at $27.

Very little is heard of sales of Buffalo iron these days, probably because producers are well sold up. Prices range from $26 to $27 per ton, furnace, the latter price prevailing for consumption in the Buffalo consuming district, the former in competitive districts, as New England.

Very little foreign iron is being sold at present. Scotch iron sells at $29, Middlesborough at $27.50, and Continental iron at $26.50, all duty paid at seaboard. Prices for pig iron are quoted as follows:

No. 2 foundry, Pittsburgh	$28.77@$29.77
No. 2X, East. Pa., Philadelphia	28.76@ 29.14
No. 2 Southern, Birmingham	23.00@ 24.00
No. 2 foundry, Chicago, furnace	27.00@ 28.00
Basic, valley, furnace	25.00
Bessemer, Pittsburgh	29.27

* * *

Copper

Another week has passed without the prediction of 15 cents copper coming true. Even buyers, who are habitually bearish on copper prices, were freely predicting the 15 cents price for early in January. Prices were stable all week at 14¾ cents per pound. Those producers who moved to 14⅞ cents on the momentum of the advancing movement ten days ago were forced to drop back to 14¾ cents. Toward the close of the week the c. i. f. European price was less firm at 15 cents because of the drop in sterling exchange and because of the unfavorable turn taken in the German reparations conference.

The copper mines and smelters are still short handed in labor. Further advances are not altogether improbable, though the selling price of copper would probably have to touch 16 or 17 cents per pound before this could take place. Production costs have just about become stabilized, producers having completed the adjustment in operations from a war time scale, when low costs did not receive particular attention, to peace time production, with low selling prices prevailing.

Tin

Tin prices sagged about ¼ cent per pound last week, with the London list off an average of 3 pounds sterling

per ton. Sales at London were in normal volume nearly every day, and a fair amount of buying took place in New York on each recession in price. Straits tin sells at 38¼ cents for spot and ⅛ to ¼ cent higher for futures. Banca tin is pegged at 38 cents and 99 per cent tin at 37 cents. The tin market held remarkably well at London in the face of adverse political news, and the bulls use this as an argument for higher prices in the near future. Tin arrivals in January have been: Atlantic ports, 1,650 tons; Pacific ports, 20 tons. Tin afloat is 8,258 tons.

Lead

Producers are striving to keep in check the upward tendency of lead prices, fearing an unwholesome reaction. East St. Louis lead has sold as high at 7.25 cents per pound and prices in New York have touched 7.50 cents as a maximum. The higher prices have not discouraged buyers, who are entering the market freely.

Zinc

The zinc market is steady at 7.05 cents per pound, East St. Louis. The London margin between spot and futures is constantly narrowing, at the close of the week having reached 1 pound 15 shillings. Domestic producers seem to be depending on domestic demand rather than that for export.

Other Metals

Quotations on other metals in New York are as follows:

Aluminum in 50-ton lots, 99% and purer..... 25.00 cents per lb.

Antimony, Chinese brands..... 6.60 cents per lb.

New York Old Metal Market

The following prices are current for old metals:

	Buying	Selling
Copper, crucible	12¼ to 12¾ cents	13 cents
Copper, light	10 to 10½ cents	11 cents
Brass, heavy	6¾ to 7¼ cents	7¾ cents
Lead, heavy	6 to 6¼ cents	6½ cents
Tea lead	4½ to 4¾ cents	5 cents
Cocks and faucets	8 to 8½ cents	9 cents
Solder joints	7 to 7½ cents	8 cents
Zinc, new scrap	4½ to 5 cents	5½ cents
Block tin pipe	32 to 34 cents	35 cents
Composition scrap	8½ to 9 cents	9½ cents

Chicago Old Metal Market

The following are the current prices for old metals:

	Buying	Selling
Crucible copper	12½ to 13 cents	13½ cents
Heavy copper and wire	11½ to 12 cents	12½ cents
Light copper	10 to 10½ cents	11 cents
Red brass	9 to 9½ cents	10 cents
Heavy yellow brass	7 to 7½ cents	8 cents
New brass clippings	8 to 9 cents	9½ cents
Heavy lead	6 to 6½ cents	6¾ cents
Light brass	5¾ to 6¼ cents	6¾ cents
Tea lead	4¼ to 4½ cents	4¾ cents
Zinc	4 to 4¼ cents	4½ cents
Block tin pipe	32 to 34 cents	35 cents

IN THE CHICAGO SUPPLY MARKET

Some More Price Advances — Predictions and Counter Predictions

Chicago, January 10.—With inventories and the problems of 1922 in the background, the Chicago trade is now squared away for what many think will be a year of unprecedented prosperity in plumbing, heating and allied lines.

Soil Pipe

While the price on soil pipe was advanced during the preceding week to the peak which it attained last October, this advance is not concurred in, it seems, by all manufacturers. The advance of five points may be the effect of an unprecedented demand for this commodity, which was the leading feature of the market for the New Year. Many firms are taking orders for delivery three to four months hence. Some of these orders are cut down to the bone and a few refused entirely. It seems to be the general opinion that there will be a greater scramble to get soil pipe than has been experienced during the last few days. Some concerns are out of the market entirely. "We never saw anything like it," said one manufacturer. "It has exceeded anything in our previous experience in this line. It is a question whether all soil pipe manufacturers will follow this advance in price or not." Some of the plants claim to be fighting against any advance, but intimate that they may be compelled to get in line in the near future. The general situation, so far as production is concerned, remains about the same as it has been for some weeks. Stocks in the mills are low. Foundries are working overtime, and it is the opinion of most of the soil pipe manufacturers that the excessive demand will continue throughout the summer.

Enameled Ware

The lessening of demand that affects many lines at this season of the year has not yet touched enameled ware. In fact, the manufacturers are flooded with orders. The prospect for future business is very bright and buyers are compelled to look sharp to get their orders through in time for their requirements. The market and prices remain firm.

Galvanized and Black Pipe

A situation in galvanized and black pipe exists which is similar to that in soil pipe. While some manufacturers have advanced their prices two dollars a ton on each of these commodities, it is regarded by those who have not made the advance as an arbitrary action. This might be taken as an indication of a general advance. It is problematical, however, whether or not those mills that have not announced an advance will follow this lead.

Brass Goods

No advance has been made in brass goods beyond that recorded last week in radiator valves. The demand has been very good for this early part of the year. The manufacturers have been making fairly good sized shipments and have been keeping up with their orders pretty well.

Boilers and Radiation

Although steam fitters in the city have been unusually busy, the demand for boilers and radiation equipment has fallen off to some extent. Manufacturers are still far behind in certain types of radiation, and certain signs are interpreted by some of them to predict an increase rather than a falling off in price. Several manufacturers are increasing their production capacity, but they say that, in spite of this, there will be a shortage of material.

What are said to be indications of price advances, are not given the same interpretations by all manufacturers, however. For instance, one of them says: "We do not anticipate any advance in price. Even though pig iron has gone up, which might be interpreted by some as an indication of a rise in prices, we do not look for any rise beyond that recorded last week in wall radiation."

IN THE NEW YORK SUPPLY MARKET

New York, N. Y., January 8.—With an advance in iron and steel pipe announced by one manufacturer to hold back the demand until back orders on the books have been filled, with brass goods reported as likely to move up in the near future, and with practically all other supply lines showing an unprecedented activity for this time of the year, the New York plumbing and heating supply market seems to be getting away to a good start for 1923. While jobbers would prefer to blanket prices at their pres-

ent level, they recognize that the upward tendency is really a reflection of unusual prosperity in what is normally a dull month.

There is still, unfortunately, a considerable amount of congestion on some of the principal railroads, which is holding up shipments of certain lines of supply. The situation is improving slowly, however, in this respect. The coal shortage is not as acute as it was, although production has by no means caught up with demand, and rail delays also are inconveniencing the manufacturing end of the industry. The situation as to foundry strikes is better than it was, although the trouble in the pottery industry shows little improvement at this time. Recent advances in such raw material as copper and other commodities have caused brass goods prices to stiffen in sympathy and may cause an upward move, as previously stated.

Soil Pipe

Soil pipe is active in demand and supplies are more available than they were. The last advance announced by certain houses is not being strictly adhered to, according to several members of the trade. As one manufacturer stated, "Every one is out to get business and no one seems to be standing too pat on prices where a good order is involved."

Wrought Iron Pipe

Wrought iron pipe is showing more activity, the stocks laid in by some of the jobbers before the recent advances having by this time been partially liquidated. Others, with more funds available for investment, are still carrying on with material bought at the lower levels, which gives them a considerable advantage.

Steel Pipe

Steel pipe is brisk, with prices firming steadily to an unusual demand for this time of the year. Stocks of this commodity are not particularly large, but there seems to be enough to carry on. The recent overproduction of nipples, which demoralized the market in this line to some extent last month, has now been overtaken, and with stocks liquidated there is much more buying. Some of the jobbers look to an advance in the near future if the present activity persists.

Brass Goods

Brass goods are doing well and will probably do better. At one time there was an excess of supply over demand, and this was followed by a rather acute shortage in certain lines, with jobbers shopping among themselves to fill their needs. With demand fairly well maintained, the market is reacting to recent advances in copper, and advances are spoken of as likely, if not soon, certainly before the spring. Buyers are out to cover their requirements before the present price schedules are withdrawn and there is quite a flurry of activity.

Pottery

With the pottery strike still unsettled at the time of writing, supplies are short and prices firm, with many orders unfilled. No further houses are reported as having come to terms with the strikers and the situation remains unpromising.

Enameled Ware

Porcelain enameled ware is enjoying a particularly good demand for this time of the year, and with shipments held up by rail congestion and other causes the situation is difficult. In this case also there is a considerable amount of shopping going on among jobbers.

Heating Supplies

Heating equipment is away behind as to supply, with demand rising steadily as the colder weather sets in. Many home-builders who postponed their heating installations owing to exhaustion of available funds, are now clamoring for attention, but the contractors and jobbers cannot help them. The situation is entirely in the hands of the manufacturers.

"Soil pipe is active at both the old and the more recent prices and the shortage in pottery ware and porcelain enameled ware continues acute," said Henry W. Letcher, operating under his own name. "Business is really exceptionally good for mid-winter, largely owing to continued activity in the building trade."

Advance in Prices Predicted

"An advance in brass goods is spoken of as likely to materialize early in the new year owing to advances in copper, and buyers are out to cover their needs beforehand," said Wallace Gannon, of the John Gannon organization. "Nipples are also likely to advance, owing to recent overproduction having been liquidated."

IN THE PHILADELPHIA SUPPLY MARKET

Market Firm—Pottery and Soil Pipe Up—Radiation Down

Philadelphia, January 9.—Additional signs of firmness in the supply market, coupled with reports from the various reporting agencies of strong inquiry on the part of contractors, and many local requests for bids on dwelling operations, lead to the belief that there will be no sag of any sort in the situation for a long time to come.

Pottery

Pottery was advanced ten per cent by some manufacturers, effective the fourth of this month. This is said to be the result of under production due to the strike of November 1, which reduced the net production to only about one-fifth of normal by some concerns. At the time of the strike most of the potteries were sixty days behind on deliveries.

Demand is firm and inquiry for future delivery improved since the first of the year.

Laundry trays, tubs, etc., are still far behind in delivery, and hard to get at any price. Renewed activity in operative building promises that this situation will become acute.

Soil Pipe

Soil pipe is now twenty per cent above its early December price, the base discount to the trade, according to Harry Myers, of Tomlinson Co., Inc., being 33 instead of 43, which is in effect an increase in price of one-fifth. This is an early manifestation of this expected tendency, and most factors feel that "the end is not yet."

Brass Goods

Brass goods are firm and increasing in demand for future delivery, with evidences that operative builders will soon force such jobbers as may be short in supply to cover in quantity.

Steam Pipe

Steam pipe is "in status quo," with no indications of early fluctuation. A spell of cold weather would stiffen this phase of the market tremendously, as warm weather has held up the usual volume of repair work.

Boilers and Radiation

There is a general feeling, in view of the withdrawal of prices on radiation by all other firms than the American Radiator Co. (which has announced certain rises), that further bullish developments are to be expected as soon as the strength of new building demand is felt.

General Tone Optimistic

The tone of jobbing sentiment is generally optimistic, with some attendant fear of "killing the goose that lays the golden egg." High material prices, it is said, will do this surely, if not properly controlled.

Have you sent that photograph for the picture page?

With DEALERS and CONTRACTORS NEWS and VIEWS

CHICAGO MASTER PLUMBERS ELECT OFFICERS

The annual meeting and election of officers of the Chicago Master Plumbers' Association was held in the Morrison Hotel, Chicago, on Saturday, January 6th. The following were elected to office: President, W. J. Blyth; vice-president, E. C. Wagner; treasurer, W. P. Arnold; secretary, J. Calnan; assistant secretary, Peter Munn; sergeant-at-arms, Frank J. Dillenburg.

The election was held in the association's rooms during the afternoon, and the banquet was staged at 6:30 p. m. The business sessions included the reading of the various reports and the announcement of election results. Retiring President J. C. Naughton was presented with a diamond scarf pin.

At the conclusion of the business features of the meeting, the assemblage turned its attention to an excellent vaudeville and musical program that had been arranged by the committee.

ANNUAL FESTIVITIES OF MASTER PLUMBERS OF PHILADELPHIA, PA.

The annual celebration dinner of the board of directors of the Master Plumbers' Association of Philadelphia, Pa., was held on January 2 at the home of the President John A. Quinn, who entertained these gentlemen at his home at 1613 Unity Street.

A walnut clock was presented to Mr. Quinn by D. F. Durkin, Jr., past president of the National Association of Master Plumbers. Among those who joined in the celebration, were also Robert G. Weir, William Boal, Duncan A. Worrell, Wm. McCoach, Frank P. Daugherty, Ephraim Catsiff, Robert H. Pflug-Felder, George Moeller, Wm. H. Ambrose, Wm. H. Anderson, George S. Uber, Edward F. Roberts, Harry L. Richter, and Elvin H. Mackay.

BROOKLYN MASTER PLUMBERS RE-ELECT ALL OFFICERS

The Association of Master Plumbers of the Borough of Brooklyn, N. Y., the oldest organization of the kind in the United States, has just showed its confidence in its retiring officers by re-electing them in a body. The roll-call of executives remains as follows: President, William Wolff; vice-president, Charlse H. Mentzinger; treasurer, John J. Dixon; secretary, Thomas W. Edgerton; financial secretary, William Marseglia; sergeant-at-arms, Harry Kressh; marshal, Patrick F. Halloran. The Board of Directors consists of: Mathew J. Kennedy, chairman, and Michael F. Gleason, William Eierman, Thomas E. O'Brien, John W. Sands and Louis Frisse. There are three new delegates to the Greater New York Association, as follows: Charles W. Smith, Jr., Harry Voletsky, and Frank J. Allocca.

The formation of the Brooklyn Association, in 1864, is said to have come about through informal meetings of local master plumbers in connection with a wage dispute with their journeymen. This was the first association of the kind formed in the United States; and it may also be of interest to note that the local Union of Journeyman Plumbers in Brooklyn is Number 1. Its formation followed closely on the action of the master plumbers. Another record held by Brooklyn is that both sides settled their disputes amicably for over half a century, adhering honorably to their agreements, until as recently as 1918, when the labor leaders forced a strike in defiance of an existing wage agreement, and lost out.

The first meetings of the Brooklyn Association were held under the presidency of the late H. W. Parsons at a place in Myrtle Street, known as Uncle Sam's Hall. Today the association maintains a permanent office, with a meeting room and committee room, both handsomely furnished. As M. J. Kennedy, president of the association, is also president of the New York State Association, this committee room is usually used for the meetings of the executive board of the latter body.

TOLEDO MASTER PLUMBERS' ASSOCIATION ELECTS NEW OFFICERS

At their regular annual meeting on December 27, the members of the Master Plumbers' Association of Toledo, Ohio, elected the following officers and directors for 1923: David C. Marker, president; Ben Scheuerman, vice-president; F. B. Mumma, secretary; A. M. Kern, treasurer. Board of directors, Ben Scheuerman, chairman; N. S. Larsen, A. T. Kaighin, Wm. G. Wacker, Walter Montz and John T. Eagan.

LOS ANGELES MASTER PLUMBERS TO HAVE NEW ASSOCIATION HALL

The Los Angeles, Calif., master plumbers have erected a fine new association building, which will be dedicated on January 19, and State President Daniel A. Deacon has issued a call for the State Executive Board to hold its mid-year session in Los Angeles, January 19 and 20.

This Attractive Building Was Recently Completed for R. G. Shaw's Plumbing and Heating Business in Ocean City, N. J.

WM. THOMPSON TO HEAD MANHATTAN ASSOCIATION

The Manhattan Branch of the Association of Master Plumbers at its January 2d meeting installed the officers for 1923 as follows: President, Wm. Thompson; vice-president, Wm. Lawrence; treasurer, Thos. J. Cummins; recording secretary, Wm. T. Hannegan; financial secretary, R. Tretler; marshall, Emil Spindler; sergeant-at-arms, Julius Mucke. John Byrns, one of the Grand Old Men of New York plumberdom, introduced each of the new officers and, incidentally, revived many interesting memories of earlier days in the Association. Mr. Byrns is one of the few remaining charter members of this branch. He was also a member of the committee that organized the National Association of Master Plumbers in New York City, forty years ago.

ST. LOUIS MASTER PLUMBERS' ELECTION

D. J. Collins was elected president of the Master Plumbers' Association of St. Louis, Mo., at the annual meeting of the association last week. Other officers named were: James A. Ries, first vice-president; M. J. Moynihan, second vice-president; John J. McCue, treasurer; James A. Lynch, recording and corresponding secretary; D. C. Cunningham, financial secretary, and Christopher Dunn, sergeant-at-arms. The new officers will be installed at a dinner to be given at the American Hotel Annex, Monday evening, January 15.

REAL ACHIEVEMENT IN COLORADO SPRINGS

That the Colorado Springs Merchant Plumbers' Association is a hustling, progressive body is attested by the following: They have succeeded in placing "The Story of the Bath" in the public schools both in the city and the county. They sent their secretary to the meeting at Evansville this week, and are taking up the Trade Extension Bureau courses and carrying the theories thus learned into practice. Their officers for 1923 are: F. S. Bumstead, president; T. J. Mills, vice-president; Thomas Crandall, treasurer; D. I. Flatt, secretary, and A. J. Weber, sergeant-at-arms.

SANITARY DEVELOPMENT LEAGUE HOLDS HOLIDAY FESTIVAL

A holiday festival under the auspices of the San Francisco Sanitary Development League was held at the Commercial Club, San Francisco, on Friday evening, December 20th. John A. Britton, of the Pacific Gas and Electric Co., was the guest of honor and speaker. Uda Waldrop entertained with selections on the piano. Other artists on the bill included Austin Sperry, Rudy Sieger and Roy Folger.

MILWAUKEE TO CUT DOWN EXPENSE OF PLUMBING INSPECTION BY FURNISHING AUTOMOBILES

Three of the city's nine plumbing inspectors are to be dropped, according to the deputy commissioner of public works, in Milwaukee, Wis., speaking before the City Service Commission last week. The other six men will be provided with small automobiles to cover the work.

"We have found that inspectors are spending about 60 per cent of their time riding street cars from one job to another," the deputy commissioner said. "By giving them automobiles we cut the time traveling 20 or 30 per cent."

The saving will be $6,300 annually in salaries, and from $500 to $600 in car fares, it was learned.

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Home-owners in your town need Humphrey Automatic Gas Water Heaters. Nine out of ten want them. They are already nine-tenths sold. Can't you do the rest? Write and ask us how to go about it.

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A peerless quality product manufactured and sold exclusively by

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J. SHEEHAN PLUMBING CO. INCREASES CAPITAL STOCK

The J. Sheehan Plumbing Company, of St. Louis, Mo., has increased its capital stock from $3,000 to $50,000. In its application to the Secretary of State for permission to make the increase the company lists its assets at $89,455 and its liabilities at $13,096.

TO INSTALL HEATING SYSTEM IN NEW SCHOOL AT ST. CHARLES, MO.

The Sodemann Heat and Power Company, of St. Louis, Mo., has been awarded the heating contract for the new high school building to be erected at St. Charles, Mo. The bid was $23,487. The plumbing contract went to Austin Fox, whose bid for the work was $6,400. The general contract for the building went to R. B. Higgins, the contract price being $114,700.

TO REGULATE HOME HEATING BY CITY ORDINANCE

A temperature standard, that will require owners of houses and buildings to keep them properly heated, has just been passed by the Irvington, N. J., City Council. Before this ordinance was passed the city was powerless to act when it received complaints against landlords who have contracts to supply heat. A similar law is in effect in Newark.

JOHN J. CASEY RE-ELECTED TO CONGRESS

John J. Casey, formerly a plumbing and heating contractor of Wilkes-Barre, Pa., has just been elected Congressman to represent the Eleventh District, Luzerne County, Pa., for his fourth consecutive term.

NEW PLUMBING CLASS IN CANTON, OHIO

A class in plumbing has been added to the curriculum of the Canton (Ohio) Free Evening School at McKinley High School at the beginning of the new term, according to an announcement made by C. E. Littell, head of the industrial division. The new term opened January 3.

NEW PLUMBING FIRM INCORPORATED IN BOSTON

The Mt. Hope Plumbing Co., Boston, Mass., has recently been incorporated under the laws of Massachusetts, to conduct a plumbing business. The capital stock of the firm is $10,000, and the president and treasurer is Joseph H. Schlichte, of Jamaica Plain, Mass.

BRIDGEPORT, CONN., CONTRACTOR APPOINTED TO BOARD OF CHARITIES

William H. Clark, who for many years has conducted a plumbing shop on Elm Street, Bridgeport, Conn., has been appointed a member of the City Board of Charities in that city by Mayor Fred Atwater. Mr. Clark is well known in Southern New England.

PLUMBING CONTRACTOR GIVES CHRISTMAS BONUS TO EMPLOYES

Kussman & Ellin, plumbing contractors of Newport News, Va., continued their Christmas practice of distributing bonuses among all the employes of their plumbing business at 5926 Prytania Street. The premium averaged fifteen per cent of the wages paid by the company during the past year.

FIVE BIG BUILDINGS IN ST. LOUIS FOR 1923 TO COST OVER SEVEN MILLION DOLLARS—EXTENSIVE BUILDING PREDICTED FOR THE NEW YEAR

Building activities in St. Louis, Mo., in 1922 surpassed all records for the last sixteen years, and in spite of the fact that indications are the costs will be even greater this year, it looks as if 1923 would be an even greater building year.

Five big buildings alone, which are to be erected in 1923, will cost in the neighborhood of $7,500,000. These are the Masonic Temple, to cost $2,500,000; the new Jewish Hospital, $1,500,000; the City Club Building, $700,000; the new Mullanphy Hospital, $800,000, and the addition to the Jefferson Hotel, $2,000,000.

The total of the building permits in the city in 1922 was $24,982,208. This record has not been equalled in any year since 1906, when the total was $29,938,693, and it is $7,000,000 greater than the total valuation for the year 1921.

Building costs were high last year, but they will be higher this year, as virtually all the labor unions belonging to the Building Trades Council are preparing to ask increased wages, some of them already having made their demands.

BIRDS MAKE WORK FOR PLUMBERS

A plumber, working on a stopped-up pipe to the kitchen sink at the residence of J. R. Dicks, Plant City, Fla., discovered that the pipe had been clogged by pecan nuts dropped in the top of a vent pipe by birds. The birds gathered the nuts from a near-by pecan tree and thought they were storing them in the hole, while the nuts dropped down to the bottom of the pipe and clogged the drain from the kitchen sink, causing it to overflow. A quart of nuts was removed from the pipe.

HOTEL, ROOMING HOUSE, APARTMENT AND RESTAURANT PLUMBING TO BE SUPERVISED

Starting with the new year the Florida State Hotel Commissioner has divided the state into five districts, with an architect in each district to look after plans and to supervise any buildings which may be erected for hotels, rooming houses, apartments and restaurants.

G. M. McDonald of Jacksonville, Florida, is supervising architect of the North East district, also secretary to the board. Other architects are as follows: F. J. Kennard, of Tampa; Murray S. King, of Orlando; George L. Pfeiffer, Lemon City, and Walker D. Willis, Pensacola. The new board will have as one of its first duties revising the building code and making regulations of buildings for hotels, rooming houses and apartments. The state law gives the hotel commissioner power over plumbing work in these buildings.

By this new arrangement of a hotel commissioner, it is thought that the long cherished ideal of the plumbers will be helped materially in getting contracts from the owners of buildings exclusively, rather than subcontracting from the contractors, which has resulted frequently in loss to the plumber.

OBSERVATION CARS TO BE EQUIPPED WITH BATHTUBS

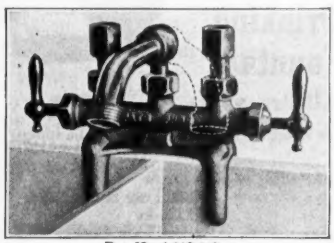
The Union Pacific Railroad system is negotiating for the construction of eighteen observation cars, each with equipment for baths, it was announced at the system's headquarters at Omaha last week.

BLAUVELT LEAD ROOF FLANGE

The Blauvelt Universal Angle Lead Roof Flange is unique among roof flanges, because a genuine stuffing-box is incorporated. It is easy to install, fits any angle or roof. It is practical and gives long service.

Write for literature and prices

The F. N. DuBois Co., Inc. 234 9th Ave., New York City



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FOR LAUNDRY TRAYS

All brass with standard half inch unions and couplings with hot and cold connections, quick compression valves. Swinging nozzle for 2 or 3 part tub. Clamp quickly engages tub. A sale with every laundry installation.

Send for Circular. **THE E-Z MFG. CO.**
714 Builders Exchange MINNEAPOLIS, MINN.

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A NEW catalog which completely describes and illustrates Pacific Steel Heating Boilers is yours for the asking. It will give you prices, specifications, and measurements and can be conveniently filed in your correspondence files for future reference.

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Universally Popular

No. 100 Exposed, Two Valve Shower complete with curtain.

A Hudson Fixture

Catalog No. 21 shows our complete line. Write for a copy.

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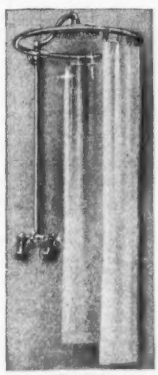

No. 100

HAYSCO

Established 1869

Better Business for Plumbers FREE

is the title of a new booklet we have just issued for plumbers. It describes a free service that will help you get more business. A copy will be sent free if you will write for it.

THE HAYS MANUFACTURING CO
ERIE PA

ACME DETROIT Drinking Fountain

Adjustable to All Pressures

A strictly sanitary fixture suitable for use in all classes of buildings. The price is right, too.

We make a line of high grade

Basin Cocks
Sink Bibbs
Drinking Fountains
Wash Tray Bibbs
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Boiler Drain Cocks
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If your jobber hasn't our goods in stock write us, giving his name.

Acme Brass Works, Detroit, Mich.

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"XPDNC"

Reverse Trap

XPDNC Reverse Trap Closet of latest design embodies the newest ideas in Reverse Trap construction.

It is offered where a powerful working, cleverly designed closet of this type is desired.

Ask your nearest Jobber for it.

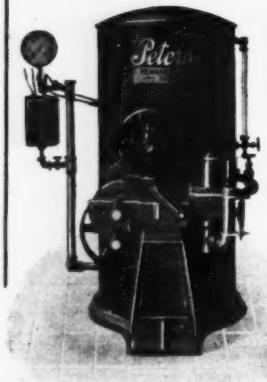
Made of Castex Whitest Vitrified China

CHICAGO POTTERY CO.
1924-40 CLYBOURN. AVE. CHICAGO. ILL.

PETERS

Electric-Automatic

WATER SYSTEM



With Electro-Weld Pneumatic Tank on Sub-Base.

Equipped with our latest design back-geared pumping unit having eccentric type connecting rod. All working parts operate in oil bath.

For vertical lift up to 25 ft. Capacity 135 gallons per hr.

The PETERS line includes just the right outfit for every water supply job.

Write for Catalog

Peters Pump Co.
Kewanee, Ill.

BUILDING RECORD FOR 1922 IN TOLEDO, OHIO

Including plumbing permits, the value of new building in Toledo up to December 25 had broken all records in the history of the city's building inspection department.

Total valuation amounted to $10,703,862, which includes plumbing permits numbering 4,846, valued at $1,324,862. This is against $9,113,485 of new building for the entire year of 1921, and exceeds the former record established in 1916.

The greatest activity was in dwelling development. Permits for 822 dwellings, valued at $2,281,204 were issued, as against 482, valued at $1,573,357, in 1921.

School building development representing an expenditure of $1,228,495 was another big factor in the 1922 record. New commercial buildings numbered 45, valued at $717,900, as against 39 in 1921 of a valuation of $202,760.

Permits for 25 factory buildings were issued in 1922 for a total valuation of $427,250. Remodeling of dwellings into flats was another big factor, 233 permits for this type of work being issued. Permits were issued also for 13 frame and 14 brick gas stations.

ON AN INFORMATION TRIP

H. Hagenson, representing the Pettit-Galloway Co., of Little Rock, Ark., is on a trip gathering information that is of interest and benefit to his firm. He is visiting Chicago, Detroit, Dayton, Evansville and other cities. Mr. Hagenson reports that business conditions are growing better in Arkansas; that there is an increasing demand for plumbing, heating and water supply systems in that state; that Little Rock is now an open shop city; that the interest in association work is picking up. Mr. Hagenson also believes that the new year will bring a great deal of school house building.

NEWS FROM FLORIDA

Chas. M. Chapman has been reappointed to the city board of plumbing examiners as master plumber by the city commissioners of Jacksonville, Fla., and George H. Hill was elected as assistant plumbing inspector.

Building permits in Jacksonville in December amounted to $535,734.00. The total for the year was $5,831,078.00.

The largest building permit issued in December in Miami, Fla., was for the Church of the Holy Name. It is to cost $500,000. The next largest was for the Scottish Rite Cathedral to cost $300,000. The total valuation of permits for the year amounted to $4,647,744.

New buildings to be erected in Bradentown, Fla., for which plans have been made, will cost $350,000.

The one million dollar Sereno Hotel which is to be built by Contractor G. A. Miller in St. Petersburg, Fla., has just been started. The building will occupy an entire block. Soren Lund and his son are the head of this enterprise.

ST. NICHOLAS REMEMBERED THE PLUMBERS

Santa Claus appeared to the 67 employes of the Simmons Plumbing Co., 351 North Main Street, Wichita, Kans., at noon the Saturday before Christmas. J. M. Simmons, president of the firm and formerly member of the board of directors of the National Association of Master Plumbers, starred in the role of old St. Nick by distributing 41 hams to as many married men; a box of cigars to each of the 14 single men and two boxes of candy to the women employes.

OUT IN CALIFORNIA

San Francisco closed up the year 1922 with a building record of nearly fifty million dollars, passing all previous records. Oakland looms up as a rival with thirty millions. Sacramento and Fresno have also had phenomenal growth.

Bank clearings in San Francisco increased six hundred and forty-five millions during the year.

The report of the plumbing department of the City of Oakland has just been made, showing an increase of 40 per cent. The Plumbers' Examining Board passed 34 candidates for master plumbers, and 156 licenses were issued.

DOES SEWAGE WHICH WAS RUN INTO SINK HOLES CONTAMINATE SPRINGS AND WELLS? FLORIDA'S STATE BOARD OF HEALTH WILL FIND OUT

For the information of the plumbers in towns and cities in Florida, Geo. W. Simons, Jr., chief of the Bureau of Engineering of the State Board of Health, will make a survey of underground water in that state, and the U. S. Government, both Health and Geological Survey departments, will be asked to participate in the work.

A number of sink holes were in use prior to 1913 for sewage, but their use is now prohibited by law. The sewage is gone—but where? Mr. Simons, assisted by Uncle Sam, proposes to answer this question. The information, it is claimed, will be of great value to the plumbers of the state.

Many springs in the state are believed to be supplied with underground water. Some of them are probably polluted with water from sink holes or drainage wells. These may be found in almost every section of the state.

The sink holes are caused by the washing out of limestone strata, and in a number of instances the ground has given way where the stone is washed away.

Some of the largest of these sink holes are to be found in Alachua County. One of these is known as "Devil Mill Hopper," a huge hole with almost perpendicular banks, located several miles from Gainesville. Near Gainesville is also what is known as Payne's Prairie. This entire lowland was once a great lake of considerable depth. Several years ago the water seeped through into some underground passage, entirely draining the lake.

All the water which pours into underground passages from lakes, streams and drainage wells is not contaminated, but some of it is and the question of what waters are fit for human consumption, is one of considerable importance to Florida. For this reason, Mr. Simons says, it has been deemed advisable to investigate and it was for that purpose the survey was planned. The results of this investigation, it is claimed, are likely to be highly beneficial and some startling facts may be disclosed.

VANCOUVER BUILDING FOR 1922 SHOWS FIVE MILLION INCREASE

An increase in building of $5,604,053 during 1922 is shown at Vancouver, B. C., the total for the year being $8,649,185. In this, however, is included an expenditure of $5,000,000 for a shipping pier, which, of course, does not come under the head of ordinary building. Aside from the pier, building operations show an increase of $604,053 for 1922, as compared with 1921. This includes the erection of 642 homes, the average cost being $2,364.

Water services in Vancouver, B. C., have been increased by 716 during 1922, and now total 25,180. During the year just closed civic water revenue totalled $547,163.

"I Rarely sell a pump without selling a Dual Valve, too"—

C. H. FINLEY, Williamsburg, Iowa

MR. FINLEY takes advantage of his sales opportunities and makes an extra profit every time he sells a pump. Williamsburg is not a big town either—in fact it has a population of but 1,200, yet Mr. Finley sold thirty Dual Valves last year, and is making installations on pumps now in service as the result of the free advertising from those already installed.

How about you? Are you letting easy profits slip through your fingers simply because you do not suggest a Dual Valve when you sell a pump? You can do as well or better than Mr. Finley if you will remember that practically every pump purchaser is a live prospect for a Dual Valve.

Every rural home or farm owner fully realizes the necessity for both hard and soft water—but many, in fact, most of them are reluctant to stand the expense of buying and installing two pumps. And there's no longer any need for two—a Dual Automatic Valve takes the place of the extra pump and delivers either hard or soft water at the tap, automatically and without a cent of cost for operation.

Wouldn't it be a good idea for you to write us today and get all the information on this much needed device and be in position to make an additional profit on every pump sale?

Dual Automatic Valve Co.

Executive Offices: Best Bldg.

Rock Island - Illinois

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KALAMAZOO

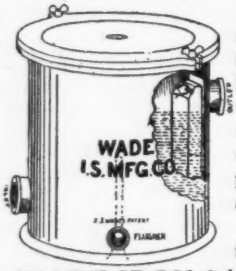
MULTIBLADE FANS
for Heating, Ventilating and Humidifying Service are installed in many of the largest buildings throughout this country.

CLARAGE FAN CO.
Kalamazoo Michigan

Write for Catalog

Our catalog No. 52 is just off the press. It contains valuable information for the Heating and Ventilating Contractor. Send for your copy today.

Wade Traps Are Sanitary



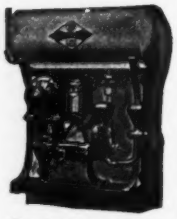
This grease trap for laundry trays with accessible flushing cleanout, is absolutely water and gas tight. No sewer gas can escape even when cover is removed for cleaning. Deep water seal prevents grease passing out and clogging waste pipe.

Write for catalog showing full line.

WADE IRON SANITARY MFG. CO.
551 W. Fulton St., CHICAGO

MONARCH
AUTOMATIC ELECTRIC WATER SYSTEMS

$117.00
Plus Freight from Dayton



MONARCH Wall Unit

MONARCH Water Systems are medium priced—some are higher, perhaps some are lower, but none are better at any price.

The Monarch line of deep and shallow well pumps covers every water supply requirement. Write for details.

The Monarch Engineering Co.
250 E. First Street Dayton, Ohio

Export Office:
O. P. Brett, Mgr., 136 Water St., New York

Simplicity and Safety
are only two of the many exclusive features of the
Wales Automatic Water Heater
which is built on an entirely new idea, as applied to the field of Water Heating for domestic use.
The many advantages of the WALES will appeal to you.
Write for complete details
The Wales Company
Kalamazoo, Michigan

THIS AND THAT—HERE AND THERE

C. C. Barr, Aledo, Ill., has the contract for the plumbing work in the Mercer County State Bank in that city.

The Sweeny Plumbing Co., Manhattan, N. Y., has changed its firm name to the Snyder Plumbing Co.

Erickson & Olson, of Turlock, Calif., have opened a plumbing shop at Delhi, Calif.

The firm of John McGovern & Co., New Rochelle, N. Y., has just been formed to conduct a plumbing and heating business.

The Smith Bros.' Plumbing Co., of Inwood, N. Y., has just engaged in the plumbing business in that city.

Braden & Hudson, San Antonio, Texas, and A. H. Shafer, of the same city, have secured the plumbing and heating contracts, respectively, for the junior high school.

The J. J. Koepsell Co., Sheboygan, Wisc., suffered a $1,000 fire recently, when fumes from gasoline, which an employe was pouring into a blow torch, exploded. The loss was covered by insurance.

The C. Moynihan & Son Plumbing Co., 1918 Olive Street, St. Louis, Mo., has secured the contract for plumbing work on the new building at the Municipal Farm for Feeble Minded in that city. The contract for the heating plant was awarded to the American Power and Pipe Company at $13,425.

Coley & Peterson, plumbing and heating contractors, of Norfolk, Va., have just completed the plumbing and heating installations in the Central apartments on West Freemason Street in that city.

The Hoosier Plumbing & Heating Co., Shelbyville, Ind., has been awarded the plumbing and heating contract for the Shelbyville Hospital, on its bid of $16,200.

Carr & Boshar, Lebanon, Ind., have just completed the plumbing work on the Lebanon High School.

The Thomas J. Sheehan Company, plumbing contractors, of St. Louis, Mo., has leased, for 25 years, the two-story brick and concrete building, now being erected on the northeast corner of Twenty-third and Olive Streets. The company, now located at 1448 Olive Street, will move into its new quarters about February 1.

Mapes Bros., plumbing contractors at Rockford, Ill., are using Bath-a-Day thermometers effectively as advertising, distributing them to customers and prospects.

J. T. Haeggquist, president of Rockford, Illinois, Master Plumbers' Association, reports that Rockford will be well represented at both the state convention at Decatur, Ill., and the three days' intensive course at Champaign, Ill. Seven delegates, including Fred R. Bailey, second vice-president of the state association, will be at Decatur, and ten or eleven delegates will go to Champaign.

The W. G. Cornell Company, Norfolk, Va., is doing the plumbing installation in the seventeen-story building of the Jefferson Standard Life Insurance Company in Greensboro, N. C. The building will be the highest in the state and one of the largest in the South. Ernest Brownhill is superintending the work for the Cornell Company.

E. T. Earnest, Greensboro, N. C., is doing the plumbing and heating work for the C. Call store and office building at North Wilkesboro, N. C. He recently installed the heating system in the new five-story building for the Huntley Stockton Hill Furniture Company, Greensboro.

White & Smith, Greensboro, N. C., are doing the plumbing work on the Jewish Temple Emanuel in that city.

Hunt Bros., plumbing dealers and heating contractors, of South Greensboro, N. C., are building a store on Walker Avenue, which they expect to occupy shortly.

The citizens, industries and school children of Quincy, Illinois, have subscribed $25,000 for a municipal swimming pool.

The Salina Plumbing Company, Salina, Kans., have secured the $14,591 contract for plumbing and heating in the new dormitory for girls at the Emporia Normal School.

The Belleville Plumbing Company, Belleville, Kans., has moved its shop to the Weeks Building in that city.

The W. H. Owens Company, Christopher, Ill., has purchased the plumbing and heating business of Hoe & Co. in that city.

H. A. Cabarac, New Orleans, La., has secured the contract for plumbing work on the additions to the Fulton Bag Co.'s plant.

Frank Dulan, John S. Goodenow and Wm. H. Simonds have been reappointed for three-year terms as members of the Examining Board of Plumbers in Utica, N. Y.

ILLINOIS CHAPTER TO HEAR ADDRESS ON TUNNEL VENTILATION

The Illinois Chapter of the American Society of Heating and Ventilating Engineers will hold its regular monthly meeting on Monday evening, January 15, at the Chicago Engineers' Club in Chicago. Professor Arthur T. Willard, of the University of Illinois, will be the speaker of the evening, and will deliver an illustrated lecture on "The Report on the Investigation of the Ventilation of the New Hudson Vehicular Tunnel." It is expected that the meeting will be well attended.

MACON, GA., PLUMBERS MUST HAVE SEPARATE PERMITS FOR BUILDINGS

A new license law adopted by the city of Macon, Ga., requires that all plumbing and heating men must have building permits before any new or remodelling work can be started. This law went into effect the first of the year. The annual license fee has been reduced from $75 to $40. Heretofore building permits have covered the costs of general contracts only, without any data being available on plumbing, heating and electrical work.

GEO. C. WHITE PREPARING TO MOVE

George C. White, whose plumbing and heating establishment is now at 213 Spring Street, Mishawaka, Ind., will soon move into his new quarters at 113 Mill Street in that city.

MARYLAND PLUMBERS TO DANCE

The annual reception and dance of the Maryland Association of Master Plumbers will be held in Baltimore on Tuesday night, February 6.

SCRANTON, PA., BOOMING

Building in Scranton in 1922 Was More Than Double the Amount for 1921—1922 Building Permits Show $4,980,000 Value

Building permits issued in Scranton, Pa., during the twelve months ending December 31, 1922, carried a total valuation of $4,982,356, or more than double the figures for 1921, according to the annual report of John H. Devine, superintendent of building inspection. The summary shows 1,339 permits taken out, while in 1921 the total was only 635, with a valuation of $2,459,365. The construction of the junior high school in North Scranton and the Central high school annex was responsible for about $1,600,000 of the 1922 valuation.

Capitol Products
Always Satisfy

No. 41

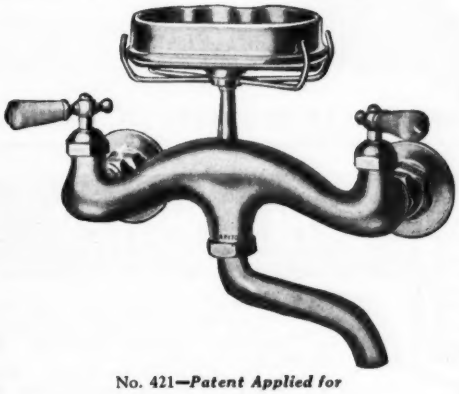
CAPITOL Radiator Valves

have been a standard for twenty-five years. Made in Packless and Standard type, also Hot Water Valves and Union Ells. A better valve cannot be produced.

We make a complete line of Steam Valves, Engine and Boiler Trimmings, Bath Cocks, Basin Cocks and Plumbers Brass Goods.

Our goods are made to give service.

Combination Sink Bibb



No. 421—*Patent Applied for*

Our plumbing fixtures are made of a high grade steam metal composition, consisting of only the highest grade virgin metals, and have an extra heavy coating of hard nickel, on high grade metal, giving a superior finish, and will last a life time if properly taken care of.

All plumbing fixtures have duplex seats that are indestructible.

Combination Laundry Tray Bibb, furnished with union, when desired, also bracket to wall.

Write for Catalog No. 12

No. 420 (Patent applied for)

CAPITOL BRASS WORKS

Detroit, Michigan

A Good "Sales-Clincher"
OFTEN, when a heating plant sale is in doubt, the Minneapolis Heat Regulator saves the sale. It positively insures a better heated home at lower fuel cost. Should be installed on every heating system. The logical time is when you install the system. Sell the job complete.
Quickly installed on any type of heating plant using any kind of fuel.
MINNEAPOLIS HEAT REGULATOR CO.
3801 Fourth Ave. So., Minneapolis, Minn.

NO ROOF IS SUPERIOR TO ITS FLANGE
Therefore, some PLUMBER is the father of every leaky roof.
The Bullard Roof Flange
is acknowledged as the only PERFECT FLANGE by busy men who have made satisfying installations.
THE BULLARD SPECIALTY CO., Tiffin, Ohio

PLENTY OF
HOT WATER
NO EXTRA EXPENSE
EASILY connected to outside of steam, vapor or hot water boiler; does away with fuel-wasting coil in fire pot. Uses surplus heat of boiler. Does not overheat or underheat. Will not burn out, once installed.
An unusual opportunity for live dealers. Order now and be prepared for the demand being created. We furnish co-operation and practical sales helps to give you full benefit of our national advertising.
Write for full details
THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat"
CLEVELAND, Ohio
The Hotstream
We also make a complete line of Gas and Kerosene Water Heaters.
INDIRECT WATER HEATER

No Come-back
No Alibi
Positive and dependable, Powers Heat Regulating devices always make good. They reflect credit on the man who installs them. No come-back — no alibi — no costly repairs at the installers' expense.
Flexible Tube
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Powers Regulator No. 11
Automatically controls hot water tanks, etc. Entirely self-contained. No air or water pressure needed to operate it. Ask for Bulletin 129.
Powers Specialties are good business builders for the plumber — find out why.
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THE POWERS REGULATOR CO.
Specialists in Automatic Heat Control
2716 Greenview Ave., CHICAGO
NEW YORK BOSTON TORONTO
Your telephone directory will tell you if one of our 28 other offices is in your city.

A CIRCULAR THAT QUOTES PRICES

The VanDeusen Plumbing Company, at Flint, Mich., mails circulars to its customers and prospective customers quoting prices on plumbing and electrical fixtures and accessories. Each circular is four pages and can be folded to slip into an ordinary envelope. Along with the prices are illustrations of some of the "leaders" that are being offered.

The company is educating the people of Flint to install such accessories and make such repairs as the average citizen can install and make. In other words, the VanDeusen Company is teaching its patrons to do without it in little things, which is the surest way of teaching patrons to depend upon it in big things.

JOB FINISHED—CONTRACTOR GONE—NO MONEY

A plumber in an eastern city complains that when he had finished a job involving the expenditure of several thousand dollars, he discovered that the contractor, for whom he had agreed to do the plumbing, suddenly left town with all his belongings, giving no forwarding address and leaving word that he would not return.

In some states a statute requires separate contracts direct with the state on public work involving plumbing, steam fitting and electrical work. It has been advocated that other contracts, not for public works, in the plumbing, steam fitting and electrical fields, should, when they attain certain proportions, have the supervision of the state for the protection of local sub-contractors.

NEW METHOD OF DISINFECTING SWIMMING POOLS

Disinfecting and Management of Swimming Pools Studied By Plumbers

EACH new convenience has also its difficulties, and the bathing pool is no exception. Complaints have been made from time to time about the transmission of disease where swimming pools or public baths are well patronized.

Calcium hypochlorite has been highly recommended for this purpose and has been adopted in many instances to make swimming pools safe. Its effectiveness in sterilizing the water is not doubted, but its use gives rise to frequent complaints on account of the disagreeable odor of the water where it is used.

This has led to much experimentation in search of an equally efficient and less offensive substitute. For the treatment of swimming pools, more than two parts of calcium hypochlorite to one million parts of water are seldom necessary, it is claimed. When this method is used aeration of the water is also necessary to overcome the objectionable taste and odor. Aeration of the water is done in some instances, but as this merely releases the odor it remains an objectionable feature in inclosed pools.

In tests made recently in a swimming pool at the Lehigh University at South Bethlehem, Pa., copper sulphate has been used with good effect. The advantage of copper sulphate over calcium hypochlorite as a disinfectant for swimming pools, is that it does not undergo chemical change readily. Calcium hypochlorite owes its power to the chemical reaction it undergoes in liberating chlorin. Copper sulphate is not irritating to the eyes and mucous membranes, as calcium hypochlorite may be when used in quantities sufficient to be effective. Copper sulphate is also cheaper and has no odor. These facts were taken from the Journal of the American Medical Association.

The number of swimming pools under construction is increasing each year. Even small towns are now becom-

ing ambitious to provide swimming and bathing facilities for their young people. For this reason the methods of taking care of swimming pools and keeping them in sanitary condition is being studied by progressive plumbers.

The city of Mount Vernon, N. Y., recently collected sixty-three thousand dollars with which to build a fine swimming pool, which they feel will do much toward increasing the good health and morals of the community.

A CLEVER PIECE OF SABOTAGE

SOME time ago, in one of the central states, a plumbing and heating contractor had cause to experience, much to his sorrow and loss, a very interesting method of "jimming up" a hot water job.

It seems that after the job was practically completed, the contractor and the fitter doing the job had a misunderstanding. Quite a bit of animosity was aroused, and it looked as if the fitter would get his walking papers when he finished the job. The contractor was anxious to have the job finished in order to make the last draw. Thinking that he had satisfied the steam fitter, he told the owner that the job would be tested the next day.

The owner and contractor appeared bright and early the next morning to fire the boiler. The steam fitter had his helper build a good sized fire, and in about a half an hour all the radiators were hot and it appeared as if the job was perfect.

The owner did not understand that plant very well and insisted that the architect should put his O. K. on the installation. This was agreeable to all, and the contractor arranged for another test the following day in the presence of the architect. The contractor then proceeded to fire the steam fitter and his helper, confident that the job was perfect.

The next morning the architect, owner and contractor put in an appearance, and very confidently the contractor built a large fire and awaited results.

In thirty minutes or so they made a round of the rooms, and found four radiators that did not heat. These radiators were very widely separated, and when after two hours of firing they still refused to get warm, the contractor realized that something was wrong.

After looking over the piping (for he was an efficient heating engineer) he decided that the only possible cause of the failure to heat was that the connections to the radiators had been stopped up. The job was then drained down and the obstinate radiator disconnected. Stiff wires were run down into the stubs, but no obstruction could be located. The contractor was in a quandary. Why didn't the job work? Determined to try it again, he refilled the system and refired the boiler. This time two of the radiators which had not got hot before were now working in a splendid manner, but, lo and behold, two other radiators which had formerly been all right now refused to get warm.

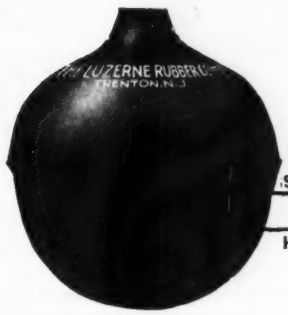
The feelings of the contractor can be imagined. He called in expert hot water fitters, but they could not figure out the puzzling job. Every time the boiler was drained and refilled different radiators would be put out of commission, while the ones which did not work before got warm in a perfect manner.

It took the owner three months to find the difficulty, after spending five hundred dollars trying to solve the problem.

The trouble was caused by the disgruntled fitter disconnecting the flange on the header and dropping four tennis balls in the boiler. As the boiler was filled the balls floated on the water in various directions, blocking up the first small opening they encountered, thus stopping the circulation. Very simple, may be, but imagine yourself

EBONITE—

The Flush Valve Ball that won't wear out



Don't compare the Ebonite Flush Valve Ball with any other you've ever seen because it's so utterly different and so infinitely better there is simply no comparison possible.

The body being hard rubber, is absolutely impervious to water—it can never collapse or get soggy. The lower outer portion is made of soft resilient rubber (see illustration above) which insures perfect seating always.

If you have not examined an Ebonite Flush Valve Ball write us on your letter head and we will gladly mail you a sample, free.

THE LUZERNE RUBBER COMPANY
Manufacturers of EVERITE Closet Seats
Trenton, New Jersey
CHICAGO OFFICE: 564 West Monroe St.

--another heating contractor

says:—

"In the past month I have had four jobs on which I used 'NEVERFAIL' Boiler Sealtite and had no comebacks.

"One of these boilers had three splits in it up to 20" in length. I stopped the leaks with five quarts of your Sealtite and went so far as to guarantee the job for a year.

"That's what I think of it."

Name of contractor furnished on request.

Boiler Sealtite Company guarantees on a money-back basis that Boiler Sealtite stops leaks in heating boilers.

Use "Neverfail" Scale Solvent to remove scale in heating boilers.
Use "Neverfail" Soot Eradicator to burn soot out of boilers.

Sold by leading jobbers or write direct to—

BOILER SEALTITE CO.
237 E. 63rd St. Chicago, Ill.

Haydenville

Ground Key Products are in a Class by Themselves.
Extra Long Plugs Perfectly Fitted—Socket Head or Patent Cap.
Lever or Tee Handle.
Both Heavy and Light Patterns.

The Haydenville Company
Haydenville, Mass.

Don't Be Content
With Ordinary Roof Flashings
Specify and Use the Reliable
"SIMPLEX"
Made in
All Lead—Copper—Galvanized Iron
Every Flashing Adjustable
Every Flashing Perfect
Manufactured only by
Simplex Mfg. Company, 213 W. Austin Ave., Chicago
Canadian Representative:
W. H. Cunningham & Hill, Ltd., Toronto, Ont.
New York Representative, John G. Kelly, 137 E. 43rd Street

Can You Afford to Sell any Water System Without These PAUL Features?

Fool-proof pump and controller—Self-priming (air-compressing) pump—No "snifter valves"—Self-adjusting packing—No stuffing box — Non-corroding pump-lining throughout—Two point crank shaft suspension—All working parts accessible with one-size wrench—Self-lubricating, self-adjusting, automatic operation, requiring no tinkering or attention. These Paul features make Paul operation positive and certain without the owner's attention or costly "free service" from your shop.

Send for free booklet on water system installation

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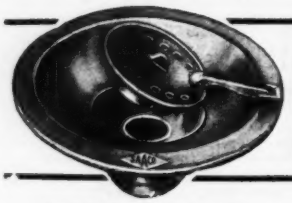
Service Offices, carrying systems in stock: New York, Philadelphia, Boston, Minneapolis, Portland, Ore., Kansas City, Mo. Also service offices at Buffalo, Providence, R. I., Pontiac, Mich., Peoria, Ill., Madison, Wis., Wilson, N. C., Omaha, Neb.

WATER PAUL SYSTEMS

There is a Paul Water System to meet all requirements of any capacity, pumping from shallow or deep well, cistern or spring.



The Strainer Can't Get Lost—

The hinged strainer on the No. 3 Saaco Refrigerator Drain makes this number a popular seller. The bell trap strainer being hinged is easily lifted for cleansing, but being permanently attached cannot become lost or misplaced.

This drain is 7½ in. in diameter and 2¾ in. deep. Tapped for either 1¼ or 1½ in. iron pipe as desired.

SANITARY COMPANY OF AMERICA
LINFIELD PENNA.

trying to solve the mystery. How did the contractor find out the trouble? He asked the helper whom he had fired.

IS THIS YOUR ASSOCIATION?

By Joe Osier

Nearly everyone has heard of Paul Bunion's pink ox that drank the Mississippi River dry; of the discontented cow that vaulted o'er the silvery moon and of——

Ol' Black Joseph, who shot either seven or eleven from seven to eleven, but——

Have you ever heard of an association of Master Plumbers or of Heating Engineers whose membership works in harmony and who are for each other from gong to gong?

I have and I'll tell you about it.

I know an association whose membership is loyal, loyal to the association and one to the other;

Where there is no knocking and where the "beefing," differences of opinion and rag chewing is turned to some good account;

Where the members boost each other's business and their mutual interests, generally, and where——

Perfect accord is the by-word after the——

Hair, teeth and ears have been swept into the corner and the battle definitely ended.

I know an association where every member——

Not paralyzed——

Attends every meeting and where every member sometime during the proceedings lifts his voice—hurls his broadside—says his say and tells those in attendance specifically, and the world, as a whole, that he is not——

Painted on a chair.

In this association there are no "yessers" and——

Let George Do Its.

They are all Georges, and they pack convincing wallops in either hand or head and——

They seldom, if ever, speak out of their turns.

In this particular association the members pay their dues—in regular money, without grumbling or plaint and——

Special assessments, for worthy purposes, are the things they are fondest of.

Repeatedly, to my knowledge, this association has been called upon to give first aid to a needy brother member who had struck on perilous shoals, and invariably they have——

Dug deep for ducats——

Which were gladly proffered to the Buddy who was——

Gettin' his'n.

This association, I know, did all this and adjourned, forgetting, for a fact,——

All about the resolution of sympathy, which we all know will not buy——

Bread, nor bonds.

And, so, despite the fact that I know that I may be accused of heresy, and——

Nominated for president of the Ananias Club, I tell of this wonderful association and rise to a point of order with this question on my trembling lips:

Is the association I have written of your association? And——

If not—why isn't it?

O. E. Higgins has been appointed plumbing inspector in Naperville, Ill.

The plumbing and heating establishment of W. G. Folsom, at Eufaula, Ala., was recently destroyed by fire. Fortunately the loss was covered by insurance.

Don't forget the Picture Page!

REVIEW OF CANADIAN BUILDING

Monumental Building Wave Has Not Yet Reached Its Crest

In the whole field of Canadian industry it is doubtful whether the year 1922 can show any achievement so thoroughly gratifying as in building. Ninety million dollars, or approximately 33 per cent more contracts were awarded in Canada during 1922 than during the previous year. Statistics show the total construction undertaken to be of a value of $331,843,800, compared with $240,133,300 in 1921. Even in 1920, a year of feverish expansion and inflated costs, the monetary value of new building was $75,000,000 less than last year. The figures of 1917, 1918 and 1919 look insignificant in comparison.

Trend Toward More Activity

The three years, 1911 to 1913, are worthy of brief pause in that they present an interesting example of a full cycle of expansion and deflation, the peak of which was reached in the record year 1912, when contracts reached the $476,394,523 mark, this in turn being followed by a leaner year (1913—$395,282,294). The year 1922 may well represent the rising tide of a similar cycle. But a scrutiny of the quarterly figures suggests that the wave has not reached its crest.

The month of December gave rise to $52,472,400 of fresh projects, this being the largest monthly aggregate since April, 1913, and one which has been exceeded only three times in the annals of Canadian building.

Residential Work Prominent

What accounts for this remarkable activity? Where, in a year of business and industrial inertia, does the impetus come from?

Type of Building.

Year	Residential	Business	Industrial	Engineering
1918	$14,661,800	$26,196,800	$38,875,200	$20,088,300
1919	47,015,100	59,606,400	57,091,300	26,315,500
1920	54,891,100	86,073,200	64,625,900	50,015,300
1921	76,655,400	84,721,700	16,503,700	62,252,500
1922	104,201,500	81,385,700	25,758,800	120,500,800

This table reveals a seven-fold increment in the output of dwellings during the five years from 1918 onward. The explanation is not far to seek. During the war and for some time thereafter this type of construction gave precedence to the more important demands of industrial expansion. A genuine shortage of homes developed, and was accentuated as building costs rose precipitously. When in 1921, material and labor costs began to fall, there was a pronounced rush to erect moderate-priced dwellings. The movement spread as costs declined, till by the spring of 1922 the sound of hammer and trowel rang as never before in the suburban sections, whole new streets sprang up almost overnight in the larger Canadian cities. A year ago it was estimated upon reliable authority that the actual shortage of homes in Canada was 165,000. During 1922 some 21,000 new houses were built. The demand would, therefore, appear to be little abated. Yet the estimate of 165,000 houses needed represents, rather, what the country would require if it could finance its full needs. It is not the "effective demand!"

Industrial Construction

Industrial construction in 1922, as compared with 1921, shows an increase of 55 per cent in the value of contracts awarded.

Ontario in the Lead

Ontario's total of $166,628,000 invested in building construction in 1922 is slightly greater than the aggregate for the remainder of the Dominion. The boom in house building was most pronounced in that province, claiming over $60,000,000, while public works absorbed an almost equal sum.

PIERCE AMERICAN
Steam and Water Boiler

Capacities from 600 to 9000 Steam
from 1000 to 14950 Water

Order from us or through your local jobber

Pierce, Butler & Pierce Manufacturing Corp.

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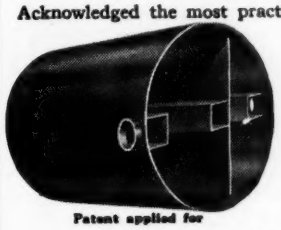
RECO SEPTIC TANK

Acknowledged the most practical Septic Tank manufactured. Why?



Patent applied for

It is light and easy to handle which means low installation cost.

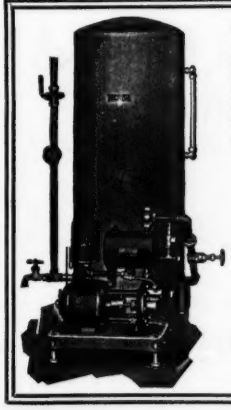
The freight rate is low.

Made of an alloy copper-steel protected by an acid-proof enamel which insures long wearing qualities.

Made of metal, it is watertight and gives better bacterial action than a concrete tank that is not watertight.

Ask your plumbing jobber or write

RICHMOND ENGINEERING COMPANY
930 Brook Ave., Richmond, Va.



THE BURKS PUMP

has been developed to meet the insistent demand for a high grade dependable pump of this type, one capable of continuous operation against high pressures

MECHANICALLY PERFECT
AND FOOL PROOF

Incorporated in all

DECATUR

Residence Water Systems

Write for complete catalog and prices

DECATUR PUMP COMPANY
Sole Manufacturers
Decatur, Illinois

Beggs Flush Valve

Quality
Class
Positive
Unquestionable
Noiseless
None Like It

BEGGS ENGINEERING CO.
HARTFORD, CONN.

BARRETT

Sewer, Tide and Back Water Trap

GUARANTEED to operate properly under all conditions.

Write for full particulars

MANUFACTURED BY

James Barrett Mfg. Co. 115-121 Pearl St. Boston, Mass.

YAGER'S

Trade-Mark Registered

Soldering Salts

Buy it of your jobber in ½-lb., 1-lb. and 5-lb. blue and white enameled cans; also 50-lb. cans.

Write for prices

ALEX. R. BENSON COMPANY, Inc.
HUDSON NEW YORK

THE BEATON & CORBIN MANUFACTURING CO.

Southington, Conn.

All Types of Floor and Ceiling Plates

No. 208 Torch
List Price Each, $17.00
Ask for Discount.

Torches That Meet Today's Needs

DOUBLE Needle Torches have greater generating power and burn the modern low grade fuels perfectly, either gasoline or kerosene. The upper Needle has a wire tip for cleaning gas orifice, lower regulates the flame. Both Needles are blunt and overcome 60 per cent of all Burner troubles caused by the old style sharp pointed Needles. Double Needle Torches give the maximum service. Jobbers supply at factory prices.

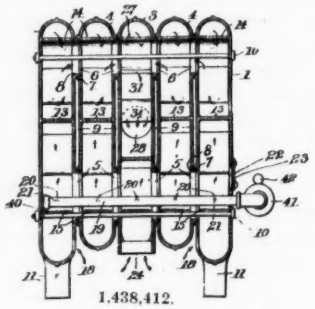
Ask for a catalog.

Clayton & Lambert Mfg. Co.
10561 Knodell Ave., Detroit, Mich., U. S. A.

Patents

HEATING DEPARTMENT

1,438,412. Gas radiator. Samuel Toles, Pasadena, Calif., assignor to Crown Gas Radiator Company, Pasadena, Calif. In a gas radiator, the combination with end sections and a vent section arranged between said end sections, there being communicating passages leading from said end sections into said vent section near the upper ends thereof, of a burner arranged in and communicating with the interior of the lower end portion of each of said

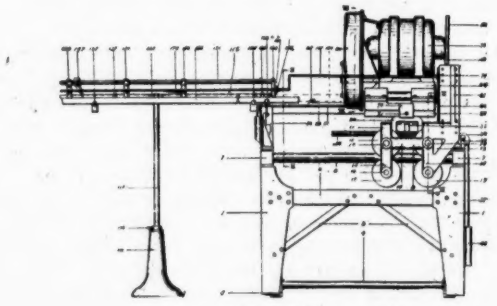


1,438,412.

end and vent sections, said vent section having an air inlet in its base portion and a vent opening in its side, and partitions in said vent sections for causing the air to travel to its top from the inlet in its base before escaping through said vent opening in its side.

* * *

1,439,963. Pipe-Cutting Machine. Edward Kamper, Toledo, Ohio, assignor to The Willys-Overland Company, Toledo, Ohio, a Corporation of Ohio. In a device of the class described, in combination, a supporting frame, a carriage movably mounted on said frame, releasable



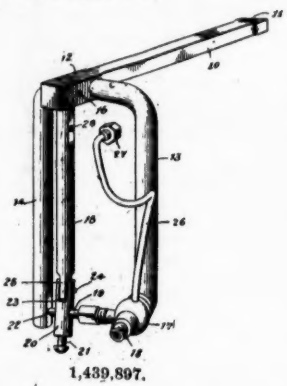
1,439,963.

clamping means movable with said carriage, cutting mechanism supported by the carriage, and movable across the path of movement of the clamping means, and means for operating said cutting mechanism.

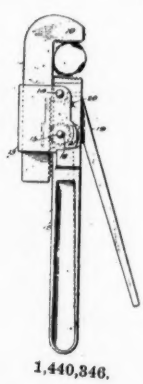
* * *

1,439,897. Thermostat. Peter B. Johnson, Seattle, Wash. A thermostat comprising a thermostatic bar having means disposed at one end thereof for rigidly securing same to a heat generating device, the other end of said bar being free to elongate or contract relative to said heat generating device, said bar being composed of material

adapted to be functionally elongated by heating and contracted by cooling, downwardly projecting standards rigidly secured to the free end of said thermostatic bar, a valve adapted to control the supply of the fluid fuel for a heat generating device fixedly secured to the lower end of one of said standards, a stem on said valve having one end pivotally mounted in the other of said standards, a lever arm adjustably secured to said stem, an arm pivotally secured to said thermostatic bar and adapted to be fulcrumed to a heat generating device, and said arm being pivotally connected to said lever arm and adapted to open and close said valve by expansion and contraction of said thermostatic bar.



1,439,897.

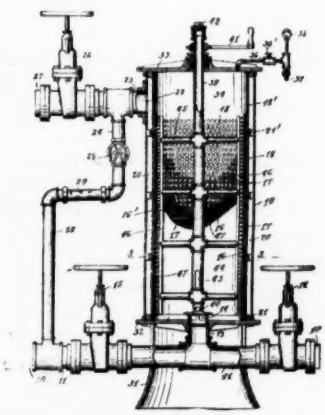


1,440,346.

1,440,346. Pipe Wrench. Robert O. Eshelman, Hyde Park, Pa. A wrench comprising a movable jaw having a shank, a separate handle constituting at its front end a fixed jaw, a U-shaped strap secured to the opposite sides of the fixed jaw and pivotally connected at its one end to said fixed jaw, and connected to the fixed jaw at a point distant from said pivot by a slot and pin connection, rack teeth on said shank, a pinion on the fixed jaw, and means to lock said pinion against rotation.

PLUMBING DEPARTMENT

1,439,706. Filter. George Kneuper, Brooklyn, N. Y., assignor to Charles Hansel, New York, N. Y. A filter comprising a casing provided with a central inlet at the bottom and a lateral outlet at the top, an apertured body interposed between said inlet and said outlet and com-



439,706.

prising a plurality of perforated layers reaching from the bottom of the casing to a point materially below the top thereof, the size of the individual aperture being greatest for the outermost layer and least for the innermost layer, and the outermost layer being spaced from the outer wall

Weil-McLain

SCIENTIFIC COMBUSTION

BOILERS

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Weil-McLain Company

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More Profits

with less efforts are being obtained by using our Standard Portable vise bench and pipe bender. Set up in a minute. Nothing to take apart or put together. Several improvements. You will be well repaid if you will drop us a line for catalogue and list of hundreds of satisfied users.

The extension table, made of sheet metal, shown in illustration can be detached and attached to any bench with two bolts.

Write now

Standard Iron Works Inc.

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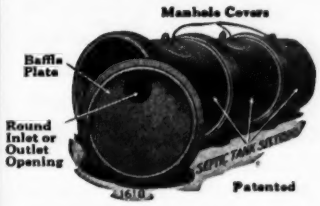
A Material You Prefer to Install



The Dickey Septic Tank is made in sections of Vitrified Salt Glazed Clay and is as easy to install as Vitrified Sewer Pipe.

No forms, bolts, or reinforcing to complicate the work.

Your customer will also prefer this permanent material when he understands its merits as you know them from experience.

Write for complete details

W. S. DICKEY CLAY MFG. CO.

KANSAS CITY Established 1885 MISSOURI

"Thrift" House Heating Range

Heats 8-room house by hot water. Gives separate domestic hot water. Cooks and bakes. No extra coal. 350 sq. ft. of radiation. 70° in zero weather guaranteed.

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Zimmerman Stove Heater Corp.

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The World's Best Tank Bulb

Made of pure gum, it will not swell or collapse and its distinctive shape positively prevents elongation.

Guaranteed 3 Years

This Tank Bulb is practically indestructible and will not harden in stock. An iron-clad replacement and labor-cost guarantee goes with every Mushroom Parabal.

MUSHROOM **Parabal**

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PHILADELPHIA

Gerstein
Cistern and Riveted Pressure Boilers
can be described in one word—

Everlasting

They not only *last* but give continuous, satisfactory service.
Made in any size, pressure or capacity desired.

Write for details

Gerstein Bros. & Cooper
Coppersmiths
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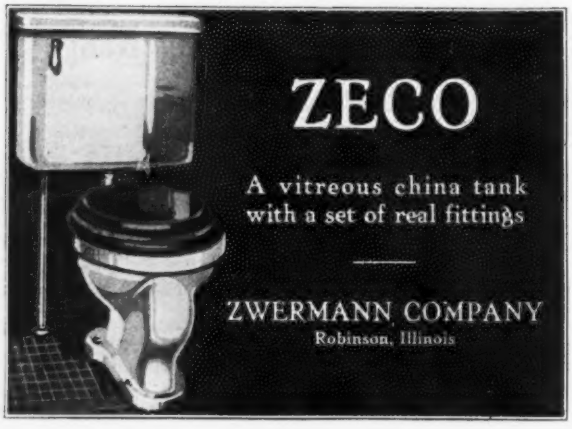
FOR lasting quality and true capacity use *"Koven"* Pure Iron Double Row Riveted, Galvanized Range Boilers, or *Naco* Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

L. O. KOVEN & BRO.
154 Ogden Ave. Jersey City, N. J.



ZECO

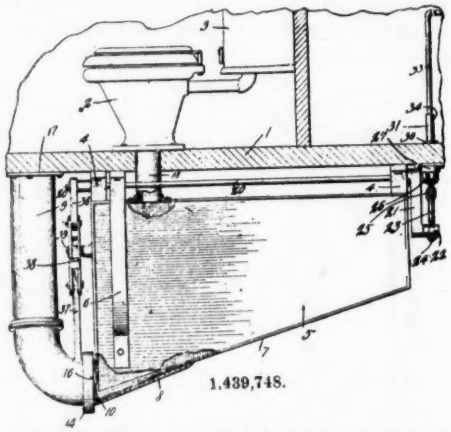
A vitreous china tank with a set of real fittings

ZWERMANN COMPANY
Robinson, Illinois

of the casing to form a chamber communicating with said outlet, and an imperforate wall extending from the top of the casing downwardly to the level of the perforated layers and forming with the said top a dome or chamber for the reception of material floating on top of the liquid passed through the filter.

* * *

1,439,748. Toilet. Charles C. Moore, El Paso, Tex., assignor of one-half to Robert E. Harris, El Paso County, Tex. In a device of the class described, a tank; a toilet

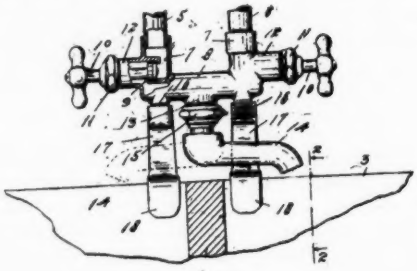


1,439,748.

discharging thereinto; an angular spout constituting an outlet for the tank and rotatable thereon; and means under the control of an operator for swinging the spout upwardly and downwardly from a remote point.

* * *

1,439,792. Laundry-Tray Faucet. Olof S. Burman, Minneapolis, Minn. A hot and cold water faucet having

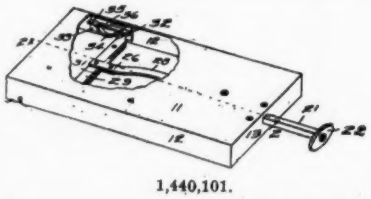


1,439,792.

a laterally swinging nozzle and provided with a pair of laterally spaced legs detachably secured to the body of the faucet at points above the swinging plane of the latter.

* * *

1,440,101. Toilet-Seat-Cover Holder and Dispenser. Hans C. Pfund, Des Moines, Iowa, and Royal L. Ash, Nevada, Mo. In a device of the class described a hollow



1,440,101.

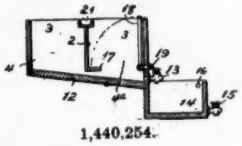
container designed for containing and dispensing sheets of paper, each having a tongue cut therefrom and attached thereto at one end, said container being designed to hold the sheets, and being provided with an open lower end, projecting pins on the inside of said container upon which

such sheets and tongues are adapted to be held, with the pins extended through suitable openings therein, a curved guide element arranged above the pin which supports the tongues and inclined toward the open end of said container.

In a device of the class described, the combination of a pad of sheets of paper, each having a tongue cut therefrom, and attached thereto at one end, and being provided with holes near the edges of the sheet and tongue respectively, with a support designed to hold the sheets, pins on the support, projected through said holes and upon which such sheets and tongues are supported, a guide element arranged on said support, extending from position on one side of the pad of sheets, through the pad where the tongues are cut therefrom, to position covering at the end of the pin provided for the tongues.

* * *

1,440,254. Water Purification. John T. Travers, Columbus, Ohio. In apparatus of the character described, the combination with a tank provided with a plurality of



1,440,254.

precipitation chambers, an inlet chamber communicating with each precipitation chamber, and means for causing liquid to pass from the upper portion of one precipitation chamber to the upper portion of the inlet chamber of a succeeding precipitation chamber.

WHERE AND HOW TO USE RETURN TRAPS

(Continued from Page 74.)

Check valves should be of brass with the flappers in a nearly vertical position so as to cause the least possible resistance to the flow of water.

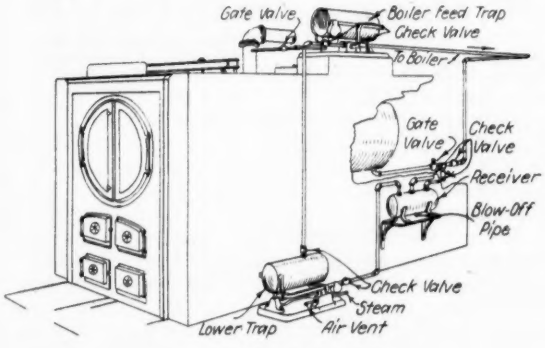
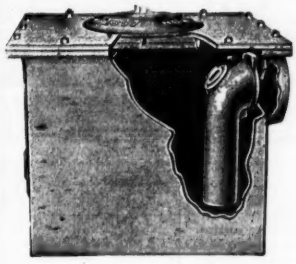


Fig. 14.

Another important precaution, often neglected by many fitters, is to be sure and blow down the system thoroughly with the returns running into the sewer before connecting the receiver.

It is elementary that an action based upon the deceit or fraudulent representations of another cannot be maintained, unless it be shown that the party making them made them with intent to deceive. But the existence of such intent may be inferred, where a party makes an affirmation positive in form, which he does not know to be true, but of which he assumes or professes to have actual knowledge.—St. Louis (Mo.) Court of Appeals, in Gadberry v. Bolton, 242 Southwestern Reporter, 688.



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